the ecology of

the MEDICAL STUDENT

Edited by
HELEN HOFER GEE
and
ROBERT J. GLASER

Report of the
Fifth Teaching Institute
Association of American Medical Colleges
Atlantic City, New Jersey, October 15-19, 1957

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The Ecology of the Medical Student

Edited by HELEN HOFER GEE and ROBERT J. GLASER

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Editorial coordination by E. Shepley Nourse

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for the 1957 Teaching Institute

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Preface

> If we could first know *where* we are, and *whither* we are tending, we could then better judge *what* to do, and *how* to do it.—LINCOLN

Becoming a good doctor is one of the most difficult things in the world. It requires many years of arduous study and a lifetime of dedication. Today's physician, at his best, combines the clinician and the laboratory worker; he brings together the healer's intuitive art and the scientist's power of analysis and integration. In him fuse the ancient art of healing and the modern science of medicine.

The environment in which a medical student attains the stature of a physician is dynamic and tremendously complex. The student must master a broad spectrum of the natural sciences if he is to be equipped to promote health and to comprehend disease. He must learn to observe, to reason about his observations, and to compare his reasoning—free of bias—with that of others. He must come to know himself in order to understand his patients. He must have compassion and sympathy—and a high capacity for empathy. At the same time, he must achieve a detached objectivity about human behavior. Although these attributes seem mutually opposed, each must be developed without sacrifice of the others. These faculties must ripen, furthermore, under the impact of violent forces: pain, fear, hostility, death. It is a formidable task.

The Institute on The Ecology of the Medical Student explored a host of environmental stresses that influence the development of the future physician. This 1957 Institute, the fifth of the AAMC Teaching Institutes and the second in a pair on Evaluation of the Student, was held October 15–19 at Atlantic City, New Jersey. A total of 137 invited participants, including a score of sociologists, psychologists, and other behavioral scientists, took part in the discussions that provided again the characteristically vigorous interchange of opinions. These participants came from 99 medical schools (86 in the United States, 11 in Canada, 1 in Puerto Rico, and 1 in Britain), from other university faculties, from foundations, and from governmental agencies. Among them, the major areas of medical science and clinical medicine, as well as of social science, were represented.

The behavioral sciences are contributing in two increasingly important ways to medical education: as subject matter for study by the medical students, and as a growing body of techniques for the investigation of educational problems in the medical schools. The Institute was primarily concerned with the latter, the participants examining the whole range of questions involved in providing a learning environment in which medical students can be nurtured to their fullest

development. The participants gained a new appreciation of how research in the social sciences is providing a continually expanding base on which medical education can meet this challenge.

I shall not touch on most of the areas explored at Atlantic City. Rather, I wish to comment on the deepening perception gained by the participants into how significantly nonintellectual forces can—and often do—curtail intellectual achievement and emotional maturation. These forces were scrutinized in the belief that their definition could lead to their scientific analysis. From such analysis might emerge the means for lessening and sometimes removing impediments to the student's growth.

In their explorations of the ecological forces impinging on the medical student, the participants drew on new areas of knowledge flowing from the investigations of psychologists and sociologists. Efforts to characterize such forces had to take into account the widely differing types of students to be found in the nation's medical schools. It was properly emphasized that intellectual qualities, personality structures, and types of backgrounds—especially the educational and human values of the homes from which they come—all strongly affect the students' learning. Simultaneously, these forces color the "personalities" of the medical schools, which in turn make different demands on their students. This diversity is the strength of American medical education; it is also a source of great difficulty for the schools. The strength lies in the capacity to produce doctors with various orientations; the difficulty resides in the necessity for all medical schools to meet the particular needs of individual students. It is essential to realize that the medical schools are markedly different and because of this diversity can successfully serve different social needs. Consequently, difference does not imply that one school has characteristics more desirable than another.

Although schools and students differ, there is evidence that at the end of four years the medical students are more alike in some respects, specifically in terms of expressed attitudes, than they were when they entered school. This is primarily the consequence of their being brought closer together by exposure to the school's characteristic format and to its particular pattern of attitudes and values. Admittedly, the forces that tend to homogenize groups of students carry the risk of suppressing or obliterating individuality. Such forces, therefore, must be kept under reasonable control.

Dr. Robert J. Glaser, the 1957 Institute's adept and energetic chairman, underscored an analogous point in his reference to the dynamics of a streptococcal culture (see "Introduction to the 1957 Institute," page xxiv). Most of the more than 40 strains of the Group A streptococcus grow in a properly enriched medium and during the logarithmic phase of growth produce luxuriant capsules. A few strains do not grow well, just as a few medical students do not develop favorably under the circumstances of medical education. Were the "nutrients" of medical education more completely understood, the addition of the right ingredients would make a larger number of the students thrive, would make all of them thrive more vigorously than at present. Penetrating insights into these and many other problems were provided by the Institute's distinguished participant from the London Medical Hospital College, Dr. John R. Ellis. His illuminating presentation of the student in the British pattern of medical education made the Institute at Atlantic City into a rich experience in "comparative ecology."

Experiences in medical school can profoundly change the attitudes, values, and objectives of students. Findings reported at Atlantic City purported to show, for example, that medical students increase in the verbal expression of cynical attitudes and conscious symptoms of anxiety as they progress through school, but decrease in the expression of humanitarian feeling. Because changes such as these were immediately interpreted by many of the participants as being for the "worse"—in the orthodox sense—the most heated debates at the Institute were provoked by these reports.

The investigations in question were conducted at an Eastern university, where comparative studies were made in the medical and law schools. Using newly devised methods by which these phenomena can be traced, the variables denoted Cynicism, Humanitarianism, and Manifest Anxiety were carefully measured. Entering law students were found to profess to more cynical attitudes than do entering medical students. As seniors in the same schools, however, these students were about equal in the extent of cynical attitude expressed. Senior medical students, that is, were observed to have become more cynical than they had been as freshmen. The most anxious medical students, moreover, were significantly more cynical than the least anxious—cynicism was not a successful defense. Furthermore, the erection of cynical defenses was not necessarily essential to success in medical school as based on class standing. (For details, definitions, discussion, etc., see the provocative paper by Dr. Leonard D. Eron, page 25.)

In their restrained reports on the application of the techniques of sociology to the study of medical students and their educational problems, the behavioral scientists emphasized the need for caution lest one leap to generalization on the basis of inadequate evidence. It was they who pointed out the limitations in their own studies. They warned against making premature assumptions about the significance of their findings. Throughout, they made it clear that neither directly nor indirectly were they implying value judgments. Nevertheless, many of the participants manifested a propensity to ignore the warnings of their colleagues—they found it hard to be content with observations of what was happening and attempts to determine the influences at work. Not to evaluate in terms of "good" or "bad" proved for many to be exceedingly difficult. The habit of "value neutrality" must be acquired.

And why should most of the participants not have found it difficult? Although "cynical" has many shades of meaning, it *is* difficult to separate the word from its "evil" connotations. It was asked repeatedly at the Institute whether a degree of cynicism is a necessary device for the physician to use in arming himself against the vicissitudes of his role in society and in fortifying his equanimity in the face of human conduct often dominated by self-indulgence carried on at the expense of others. Having understood that cynicism is frequently a part of the medical student's reaction to his educational experience, it is essential to seek the origin of this phenomenon in the medical school. Perhaps something could be done to make a cynical reaction more constructive. If the contemptuous component of the cynical reaction could be prevented, cynicism might become almost synonymous with critical discernment. In other words, the reaction toward cynicism might be converted into something more desirable in the conventional sense. Were this found to be possible in spite of the obvious difficulties involved, understanding the sources of the cynical reaction of students would pay high dividends.

In addition to their need to be equipped to deal with the distressing frailties of human flesh, doctors must learn to verify every fact before accepting it. To maintain a high index of suspicion is to insure that one will make fewer errors. Without a critical attitude and without the habit of searching behind the veil of superficial appearances, doctors cannot give their patients the best that modern medicine has to offer.

Lord Byron penetrated to the heart of the difficult matter under discussion when he observed in *Don Juan,*

> And if I laugh at any mortal thing,
> 'Tis that I may not weep . . .

Laughing at patients by physicians is not to be condoned. Byron's insight illustrates, nevertheless, a mechanism sometimes utilized to avert the greater disaster of weeping. And so it may be with the cynical medical student. Assuming he is cynical, what does he gain by it? Were he not cynical, what would he lose? What forces in him and in the school accentuate his cynical reaction? Does it have constructive uses? If so, could they be mobilized more effectively? These and many similar questions that were asked at the 1957 Institute led to searching inquiries into the ecological forces in the medical school. They helped show the way to a better understanding of the student and his needs. The psychiatrists pointed out that usually little is known about the forces at work within the student that permit the development of cynicism or other values, yet these intrapersonal or psychodynamic forces are extremely important. All of which highlights the great complexity and potential danger of attempting to manipulate the educational process. It must be borne in mind, also, that no single aspect of the medical school environment can be altered without its having significant implications for the whole. As the sociologists continued to explain, no one today knows how to influence social institutions as complex as medical schools in order to achieve a given result.

Creating an environment in which each medical student can reach his full development is no simple task! This environment must be diversified as well as stimulating. The tremendous load of hard work cannot be eliminated. To detoxify a school to the point where the students' natural reactions of immunity are not provoked, where little opportunity is afforded to manufacture antibodies against the rigors of the medical life that awaits them, would be to construct a germ-free academic environment totally inconsistent with the reality of becoming physicians.

When men can sharpen their tools and strengthen themselves to meet adversity, they can go into action effectively. For future doctors two activities in medical school have special importance: participation in the therapeutic relationship of doctor and patient, and participation in research. Opportunities to do research themselves and to work independently should be the right and privilege of every medical student. Such opportunities teach him to seek his own solutions to problems by assembling the data, analyzing them, and formulating his own hypotheses. This is the essence of true learning. Each medical school will have to work toward this objective in its own way—clearly there neither can be, nor should be, a single grand design for all schools. The ultimate objectives are nevertheless the

same: the stimulation of independent thinking and the fostering of emotional maturity. These are two indispensable ingredients that make education into more than training, make physicians into more than technicians.

The maturating influence resulting from the medical student's participation in the therapeutic relationship of doctor and patient, under circumstances that demand of the student the personal assumption of increasing responsibility for the care of the patient, will be the focal point for discussion at the Teaching Institute to be held two months hence at Swampscott, Massachusetts. This next Institute, the sixth in the AAMC series, will be the first to concentrate on clinical teaching and learning. More than two years of intensive effort have already been expended by the Planning Committee under the vigorous leadership of the chairman, Dr. Julius B. Richmond. He and his colleagues have designed an exhaustive re-evaluation of the students' clinical experiences in the light of the vast development of medicine in recent decades. The objective is the mobilization of the clinical setting in a way best to catalyze the growth of the medical student in order to help him realize the expanding role expected of him by the society into which he will move.

The AAMC is ready for this exciting next step. The Teaching Institutes have already become the important national forum that I hoped for when I proposed the present series in 1952. The many disciplines and viewpoints that contribute to medical education in America have been thoroughly analyzed, and many new teaching programs at the nation's medical schools have been stimulated.

The background for the Teaching Institutes was the three conferences held in 1951 and 1952—two on psychiatry and one on preventive medicine—in which the AAMC participated in partnership with the American Psychiatric Association and the Conference of Professors of Preventive Medicine. Out of these experiences developed my plan for the Teaching Institutes.

The first three of the AAMC Institutes, which were held in 1953–54–55, dealt with the basic medical sciences: physiology, biochemistry, and pharmacology; pathology, microbiology, immunology, and genetics; anatomy and anthropology. "Medical Ecology" was the topic projected in 1952 for the fourth Institute. When the time arrived to plan for an intensive examination of the medical student, who had been rather neglected by the participants in their preoccupation with curricular development during the three-year exploration of the medical sciences, the planning committees concerned soon came to realize that two Institutes would be required to deal adequately with the student's capacities and limitations for learning, his personality, and his emotional reactions to the inevitable pressure of professional study. The 1956 and 1957 Institutes, accordingly, were designed as a pair on Evaluation of the Student.

The 1956 Institute took up the appraisal and selection of applicants to medical school. At this Institute, the psychologists helped the AAMC reach a milestone in the recognition that psychology has produced new insights into the mosaic of personality that have profound implications for the future of medicine. At the 1957 Institute, the sociologists made a similarly significant contribution by throwing fresh light on the interaction among a variety of forces involving the medical school setting. These last two Institutes have provided for medical teachers a growing awareness of the role in which social scientists can be exceedingly helpful in evaluating the problems of medical education.

At Swampscott, next October 7–11, the stage is therefore set for the 1958 Institute. The complex factors making the teaching of clinical medicine unique in its essential three-way relationship involving the student, teacher, and patient will be exhaustively scrutinized.

GEORGE PACKER BERRY, M.D.
Dean, Faculty of Medicine, Harvard University
Chairman, Committee on Educational Research and Services
Association of American Medical Colleges

BOSTON, MASSACHUSETTS
August 1, 1958

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Introduction to the 1957 Institute

IT IS WELL recognized by those interested in medical education that the Teaching Institutes, sponsored during the past five years by the Association of American Medical Colleges, grew primarily out of a proposal by Dr. George Packer Berry in his Presidential Address to the Association in 1952.[1] In addition to supplying the original key idea, Dr. Berry afforded enthusiastic, thoughtful, and inspiring leadership in the planning and execution of the first three Institutes dealing with the teaching of the basic sciences and of the following pair focusing on the medical student and his environment. The debt we all owe Dr. Berry is a great one, and it would be remiss not to acknowledge it here.

The decision to turn Institute attention to the medical student before starting the series of Institutes on clinical teaching was well supported, and for the 1956 and 1957 Institutes it was agreed that, as Dr. Thomas H. Hunter so well expressed it, "the student would be king." The first of the two student-oriented Institutes, held at Colorado Springs in 1956 under the very effective chairmanship of Dr. John T. Cowles, was titled The Appraisal of Applicants to Medical Schools. The importance of the deliberations which ensued is recorded in the report which was published in book form by the Association and appeared also as a supplement to the *Journal of Medical Education* in October 1957. Not only did those concerned with medical school admissions have an opportunity to review in detail many aspects of the selection process, but they were also able to gain from a distinguished group of psychologists new insight into the status of the objective measurement of various parameters pertinent to selection. For example, many in medical education were startled by the evidence in regard to the value of the personal interview, previously believed to be an almost infallible predictive tool. After this Institute on selection, it seemed in order to examine the complex factors that affect the student's over-all environment once he enters medical school—thus the second Institute where the student was king, the 1957 Institute on The Ecology of the Medical Student.

Pre-Institute planning

It is always difficult to decide what aspects of a very large number of important subjects are best chosen for detailed discussion in a brief period—for although the Institute lasted for three days, this period was obviously brief in terms of the many topics that bear upon the Ecology of the Medical Student.

In one sense the Planning Committee responsible for the 1957 Institute's content faced a problem similar to that confronting today's medical student: i.e., not the choice of the important over the unimportant, but rather that of the more imporant from the less important. After much discussion, the following five major

[1] Two conferences, several years earlier, dealt respectively with the teaching of psychiatry and preventive medicine; these were also of importance in the genesis of the Institutes.

subject areas were chosen: Diversity of Values and Objectives in Medical Education, Intramural Forces Affecting the Medical Student, Noncurricular Factors Affecting the Medical Student, Development of Professional Attitudes and Capacities, and Educational Patterns for Medicine. Each topic was organized by a subcommittee under the chairmanship of a member of the Planning Committee; in each case the chairman was joined by a group of men especially knowledgeable in the particular area of the designated topic.

In the months preceding the Institute, a considerable body of data was collected by means of three questionnaires sent to participants, department heads, and medical students at 97 medical schools in the United States, Canada, and Puerto Rico. In addition, two special questionnaires were sent to faculty and students at 15 medical schools representing various publicly and privately supported schools in each of four geographic regions in the United States; the group of schools represented in each regional sample was identified with average Medical College Admission Test scores either above or below the national average and paired accordingly for purposes of analysis. The distribution of questionnaires within the schools was arranged so that the faculty groups included full-time and part-time persons, and those from basic sciences as well as the several clinical specialties.

At this point a digression may be in order regarding the response to questionnaires, emotional and otherwise. All of us are aware of the burden involved in careful completion of a questionnaire, and of the fact that many members of medical faculties are subjected to more than a few of them. They are not popular, partly because of the time involved in answering them, and partly because individuals often are unable to see the pertinence of the questions to the project for which they are sought. Nonetheless, the response to the Institute questionnaires, circulated by each participant within his own institution, was gratifying, returns ranging from 70 per cent to 95 per cent. The data collected were of real importance for the purposes of the Institute; above and beyond this function, they will undoubtedly afford much useful information for special studies in the future. I should like here to acknowledge the remarkable contribution of Dr. Helen Hofer Gee, coeditor of this report, and her staff in collecting and analyzing the questionnaire material and in providing the results, many of which are included in this report, in such meaningful form.[2]

The Institute was characterized by a limited number of didactic presentations, and these were designed to focus on a given topic for subsequent consideration by small groups. Emphasis was placed on such small-group discussions, because they can provide an excellent opportunity for interchange of ideas. Each round-table discussion was summarized by a recorder, and a number of contributors to this report have incorporated much of the summary material in their papers. Those attending the Institute were participants in the best sense of the word, and consequently the deliberations were all the more stimulating and valuable.

One of the interesting points about this Institute had to do with the backgrounds of the participants. The first three Institutes, devoted to specific disciplines, drew as participants men primarily involved in those disciplines. In 1956,

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[2] For further details on the pre-Institute survey and a note on interpreting the tables, see Appendix A.

the admissions officers brought together a group with somewhat more diverse professional backgrounds, but the 1957 Institute was attended by participants from a large number of fields and included a large number of clinicians. This diversity of fields contributed significantly to the breadth of discussions. The largest single group, approximately 30, came from internal medicine; about one-half were departments heads; in addition, there were 10 psychologists, 9 anatomists, 8 surgeons, and smaller groups from psychiatry, preventive medicine, pediatrics, obstetrics and gynecology, sociology, and the preclinical sciences.

The medical student today

In the present era medical education, like so many areas of our society, is characterized by extensive ferment, and the ecology of the student is obviously affected. For example, think only of the number of married students in our medical schools today in contrast with the number in the period before World War II. Of the students who answered the questionnaire for the 1957 Institute (a cross-section of all four classes), 40 per cent were married and 9 per cent engaged. Of the married students, 29 per cent had one child, 14 per cent had two, and 6 per cent had three. These data alone have obviously significant implications, financial and otherwise, for today's medical student.

In recent years the fact that entering medical students are in fact a heterogeneous group has begun to be more widely appreciated. They come from different backgrounds, have different reasons for choosing a medical career, and expect different things from their medical school experience. During their medical school careers, their attitudes change—not always for the better—and at the same time they acquire certain similarities in appearance and demeanor. At the Institute, and in this report, these topics are discussed in detail, but it is worth emphasizing that the entering medical student cannot be presumed to fit a set pattern. In this respect we are reminded of the story of the Madison Avenue firm that advertised for a young executive. The advertisement specifically asked for an urbane, sophisticated man, 28 to 35 years of age, with a college education and prior successful experience in the business world. The following morning the first candidate to appear was an elderly man, obviously ill-groomed, and distinctly not the picture of success. He announced that he had come in response to the announcement of the job opening. The personnel manager of the firm asked his age and the man replied, "65." When asked about a college education he said: "I ain't never finished the second grade." "Well," he was asked, "have you had prior business experience?" The elderly man said, "No, I ain't really worked a day in my life." Rather puzzled and annoyed, the personnel man said, "Since you don't have any of the qualifications we want in this position, why did you come in?" The old tramp said, "I just came in to tell you not to count on me."

I am sure our medical students do not differ quite this much from what we expect, but the point remains that they will not necessarily conform to our *a priori* conceptions. Perhaps some of the striking differences in students can be well illustrated by referring to spontaneous comments in the student questionnaire material circulated prior to the Institute. For example, one student voiced his view that teaching should be directed toward inculcating in students the understanding

of the patient as a whole rather than as a disease entity. This is an objective with which many medical educators would concur. Yet this student went on to say that this objective was not reached in his school because of an excessively didactic approach to teaching.

In contrast, another student had this to say: "Organized lectures are what I paid for. I want to learn the basic facts and have some firm ground to stand on before I launch into philosophic thoughts in experimental medicine." And still another said: "Please get rid of the do-it-yourself course in medicine." It is obvious that in a given school all three of these students would not find the educational program equally suited to their tastes, and conversely, they in turn would not impress the faculty equally favorably.

One student complained that "I know a devil of a lot about lupus and rheumatoid arthritis but I don't know what to do for a headache," whereas still another student's only complaint was "colored chalk has been unavailable to the point where an instructor asked us to bring some." These two students would seem to have rather different areas of concern regarding their medical school experience.

There is clearly, then, considerable variety among students in medical school in regard to basic ideas and goals, and there are almost certainly differences of like magnitude among faculty members. All of these factors have an important impact on the ecology of the medical student.

The growth and development of the student once he enters the medical school may be compared in a broad sense to that of a microorganism. Reference to an organism that is a familiar and common one—the group A streptococcus—may be useful here. An analogy may be drawn between the growth of strains of this bacterium and growth of students in medical school. The group A streptococcus, when inoculated into a suitably constituted medium, begins to multiply and soon attains the logarithmic phase of growth, during which all but 2 of the more than 40 strains develop a capsule. In some instances the capsule is large and impressive, in others less so. Two factors are operative in determining the kind of capsule formed: one, the genetic characteristics of the organism, and the other, the nature of the medium. Of further interest is the fact that after a given period of time, unless the medium is enriched again, the capsule fades. So it is with the medical student. He comes to us with certain characteristics that enable him to develop an "intellectual capsule" of lesser or greater degree. If the proper medium is provided, his intellectual development will be logarithmic, and if the environment remains stimulating, it will persist.

How, therefore, to provide initially a substantial environment, and how to assure ourselves that it will remain a rich one rather than becoming a stale, limiting one are two extremely important questions; both were not only of concern at the 1957 Institute, but will receive keen attention at the subsequent Institutes having to do with clinical teaching.

Several years ago, in a "Symposium on the Medical Student" published in the *Journal of Medical Education*, our British colleague, Dr. John R. Ellis, who participated so effectively in the 1957 Institute (see Chapter 11), recounted the comment of one of his countrywomen who asked, "Where do all the horrible medical students go and all the fine young doctors come from?" Presumably the answer lies in the nature of the milieu which is responsible for the dramatic change; the 1957 Institute concerned itself with this broad area.

It is hoped that the papers comprising this publication will be of interest to all those concerned with medical education. Just as in 1956, when the psychologists had such a forceful impact on those responsible for the admission of students to medical school, so in 1957 a notable feature was the participation of a group of able sociologists who have in the past few years turned their attention to medicine and medical education. Their contributions have been important ones and certainly foreshadow intense activity by behavioral scientists in medical education in the years ahead.

One of the basic tenets of the Association of American Medical Colleges Teaching Institutes has been the concept that specific solutions to any of the complex problems dealt with have not been sought or expected. Indeed, the purpose of all the Institutes has been to explore and discuss mutual problems in order to exchange ideas and thus to broaden perspectives; it has been recognized that each medical school must chart its own course, basing decisions on the results of analysis of its own situation. As we have already pointed out, the Ecology of the Medical Student is extremely complex with many variations from school to school, and it therefore follows that this report makes no pretense at supplying answers. Rather, it is hoped that it will provide a précis of the highlights of the 1957 Institute and carry to the reader some idea of the exciting experience which it provided for those who participated.

ROBERT J. GLASER
Dean and Professor of Medicine
University of Colorado Medical School
Chairman
1957 AAMC Teaching Institute

PART I

The Characteristics of Medical Schools and Medical Students

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Introductory Note to Part I

Investigation of the nature and extent of diversity among medical student characteristics has been a primary objective of studies in progress at the research division of the Association of American Medical Colleges since 1956. Through psychometric tests and questionnaire materials, data have been gathered to describe the relative homogeneity, or lack of it, existing among applicants to medical schools, first-year students, and fourth-year students. The focal point of study is variability, both in parameters and in patterning, of cognitive traits (e.g., verbal and quantitative learning ability), of nonintellectual traits (e.g., interests, values, and needs), and among backgrounds as described by biographical data variables.

By far the most striking feature of the preliminary results of these studies is the incontrovertible evidence that medical students are among themselves as variable as the whole spectrum of students in higher education. This is true, not only of personality characteristics, but of measured capacity for intellectual functioning as well. One portion of the program on the Ecology of the Medical Student was devoted to an exploration of this diversity that exists among American medical students—diversity that is a source of strength and at the same time a source of difficulty. There is strength in the varieties of doctors that emerge from the medical schools; there are difficulties in meeting the educational needs of individual students, for the more diverse the students within a school, the greater the challenge to that school to make available educational opportunities commensurate with the personalities and needs of its students.

For the Institute program, samples of data from the AAMC and other studies of student characteristics were made available, and their implications were considered during a half-day session. The following chapter is based on the formal presentations of this material made at the Institute by Drs. George E. Miller, George G. Stern, William Schofield, and Leonard D. Eron. Then in Chapter 2 Dr. Daniel H. Funkenstein explores some implications of current research efforts. His emphasis is on the individual student and the individual school, with reference to three background factors of great importance in understanding the ecology of the student: the psychosocial development of students, the effect of medical education on the students' development, and the rapidly ongoing changes in our society as they affect students.

Value judgments about medical student characteristics are not in order—not on the basis of data now available. Dr. Funkenstein points out: "It is not that certain characteristics of certain schools are more desirable than others, or that one school is better than another, but that they are different. All students and all schools have their own individual educational objectives, characteristics, and problems. It is only with awareness of these differences that we can adequately plan for educational programs that foster the maximum development of each student and enable each school to fulfill its particular mission."

CHAPTER 1 A Symposium

Diversity of Values and Objectives in Medical Education

A. Some Differences Among Medical Schools and Medical Students

BY GEORGE E. MILLER

Associate Professor of Medicine
University of Buffalo School of Medicine

EACH OF US, I suspect, believes his medical school has a distinct flavor that renders it different from all others—however difficult it might be to define precisely the way in which this difference is manifested. My purpose in describing some of these variations here is not to dwell upon dissimilarity for its own sake but to inquire into the implications of such differences for the educational program in medicine.

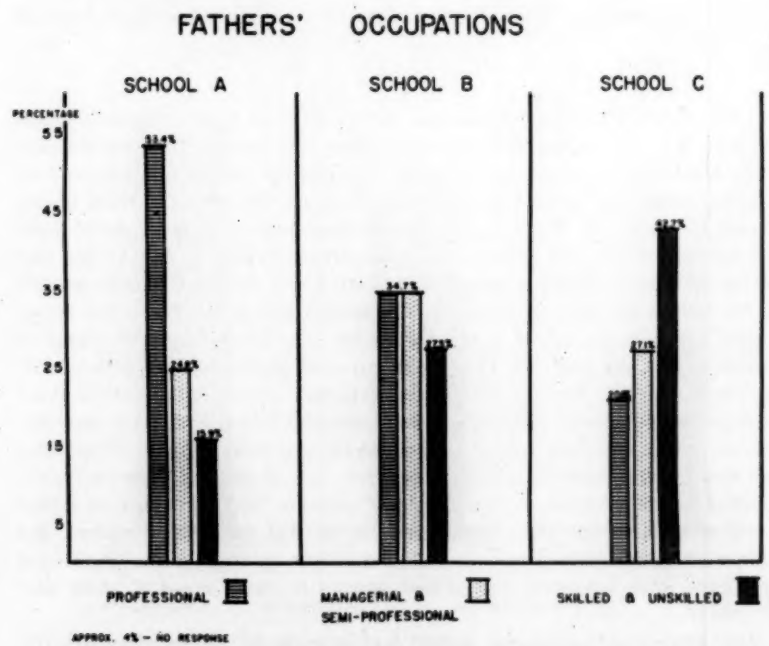

FIG. 1.—The occupations of the fathers of students at Medical Schools A, B, and C

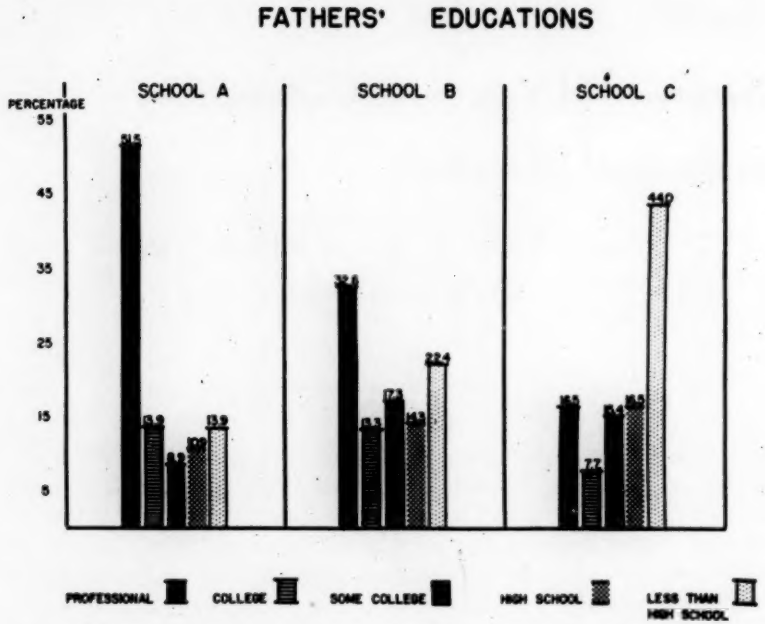

FIG. 2.—The educational level attained by the fathers of students at Medical Schools A, B, and C.

Let us begin with a simple example, three schools of similar size and type of support (Fig. 1). In the first, School A, more than half of the students have come from homes in which the father is a professional worker, one-quarter from families where the father is a physician. Contrast this with the third school, School C, where only 20 per cent of the students' fathers are professional workers and only 4 per cent physicians. Conversely, in School A only 15 per cent of the fathers are skilled or unskilled workers, but in School C nearly one-half of the fathers fall into this category. The fathers' education reflects this distribution (Fig. 2): in School A roughly 65 per cent have completed college or professional school and only 15 per cent have not graduated from high school; in School C nearly one-half did not complete their secondary education. What is the influence of such variations in environmental background upon the motivation, values, and objectives of medical students in those schools? What effect will these factors have upon their response to the educational program that is offered? Would the students from School C thrive in the environment of School A? How many of the other sociological factors that might be compared and contrasted in this fashion have an influence on the outcome of the educational experience when a medical student finds himself in phase or out of phase with his peers?

The intellectual qualities of student bodies represent another dimension by which medical schools may be differentiated. The most commonly used method

of intellectual appraisal is the Medical College Admission Test (MCAT), which is divided into four subtests designed to measure verbal aptitude, quantitative aptitude, scientific achievement, and understanding of modern society. Whether these subtests are accurate measures of these particular qualities is not the point of this discussion, but the MCAT does measure intellectual qualities and does so in a consistent fashion, which makes it an appropriate tool for the present purpose. Figure 3 shows the mean scores of students in each of the three schools on each MCAT subtest. School A averages 600, School B 570, and School C 475 with no overlap in mean scores of the subtests. With such differences characterizing these three student bodies, is it possible for the institutions to offer identical educational programs and expect similar student achievement?

Of course there are differences among students within these three schools. Lest we be deceived by averages, it may be well to look at individual student scores for, as Dr. George Packer Berry reminded us in the course of one Institute Planning Committee meeting, the amount of $1.00 may be made up of many combinations of coins and if we look only at the dollar we miss the important fact of its composition. Figure 4 shows the totally dissimilar score patterns of three students in one school. The first is high in verbal aptitude, the third high in quantitative aptitude, the second high in both. Recalling that the MCAT yields four subtest scores, it is possible to visualize the innumerable

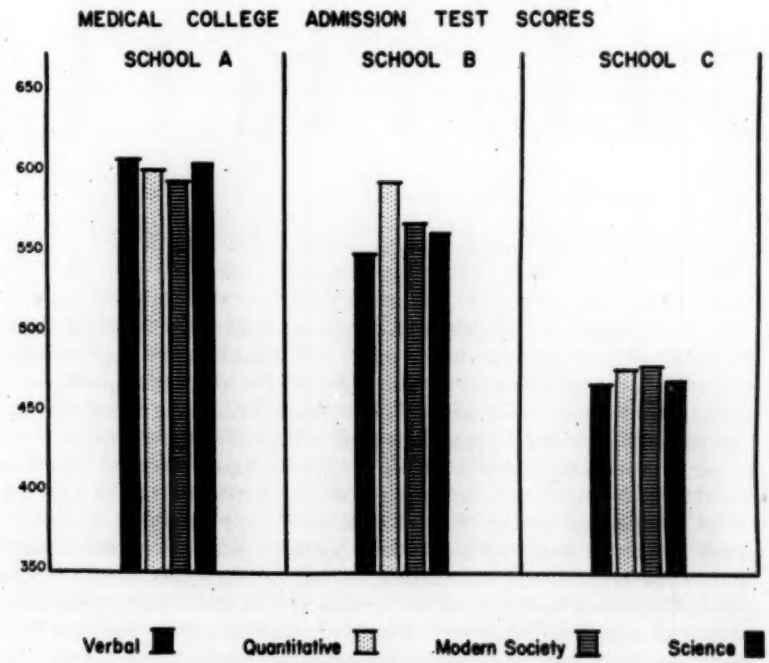

FIG. 3.—The average Medical College Admission Test (MCAT) scores of students at Medical Schools A, B, and C.

combinations that may exist within a single student body. Can we teach biochemistry to these three students in the same way and expect comparable degrees of achievement. Can we expect them to respond to the needs of patients in a similar fashion?

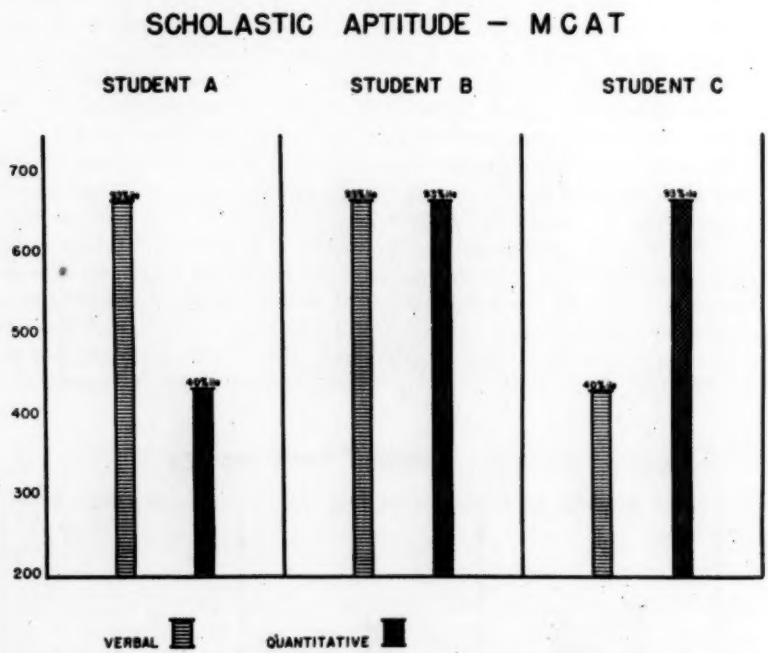

FIG. 4.—The Medical College Admission Test (MCAT) scholastic aptitude subscores of three students in the same medical school.

When we couple the MCAT with a general intelligence test (the Miller Analogies) and compare the student scores with class rank, we may encounter some curious results. The profile shown in Figure 5 is what we might expect to see: a student who is above the 90th percentile in intelligence scores, the four subtest scores of the MCAT, and class rank at the end of the second year. But we can also see such strange patterns as those in Figure 6. Student E slides from the 70th percentile in an intelligence test distribution to the 10th percentile in class rank; student F shows precisely the opposite slope; student D's profile zigzags up and down the scale in aptitudes, intelligence, and achievement. These four students have been taken from a single class in one medical school. Would they have done as well or as poorly in other medical schools, or do these data have neither predictive value nor implications for learning? What are the standards we are really trying to match?

And what of the personality structure of student bodies? Dr. Helen H. Gee and the research staff of the Association of American Medical Colleges have

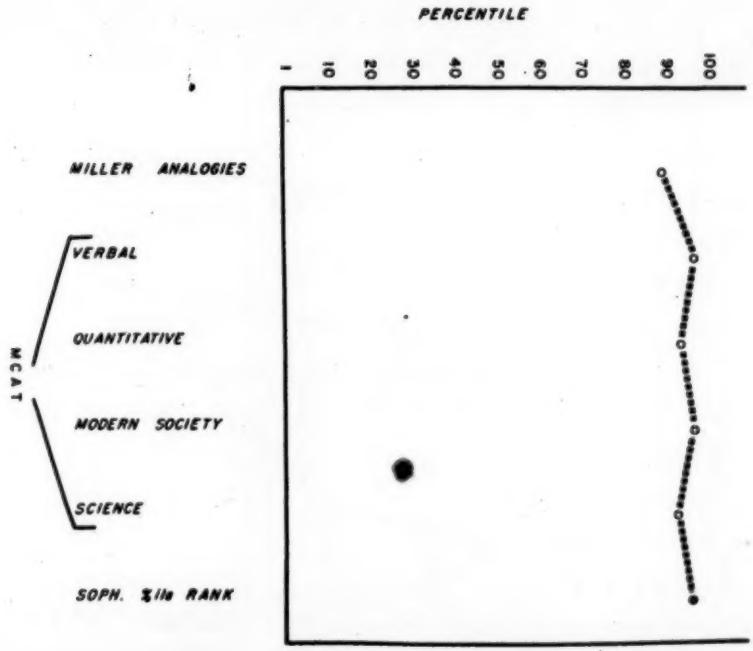

FIG. 5.—One student's scores on the Miller Analogies and the Medical College Admission Test (MCAT), along with his percentile rank in the class at the end of his sophomore year in medical school.

collected a considerable body of data in this area. One of the devices they have used in this research is the Allport-Vernon-Lindzey Study of Values, a paper-and-pencil test which may be analyzed according to six value systems that have been categorized for descriptive purposes as Theoretical, Economic, Aesthetic, Social, Political, and Religious. The test is scored in such a way that to prize one of these items highly another must be rated less precious, and thus the result is a scale of relative values rather than an absolute measure of each. Again we will not quarrel with definitions. For present purposes let us assume the test provides valid measures of the constructs it purports to measure.

Figure 7 shows mean scores of students in each of the three schools described earlier. It is interesting that in all three Theoretical values are most highly prized. In Schools A and B Religious items are lowest in the scale of values. In School B this pattern is linked with highly prized Economic values, and in School A it is coupled with highly prized Aesthetic values. Will the students in School A, which prizes Aesthetic items more highly and Religious items less highly than School C, take the same things from their medical education as School C students? If a student with the value systems characteristic of School C were admitted to School A what effect might this have upon his learning?

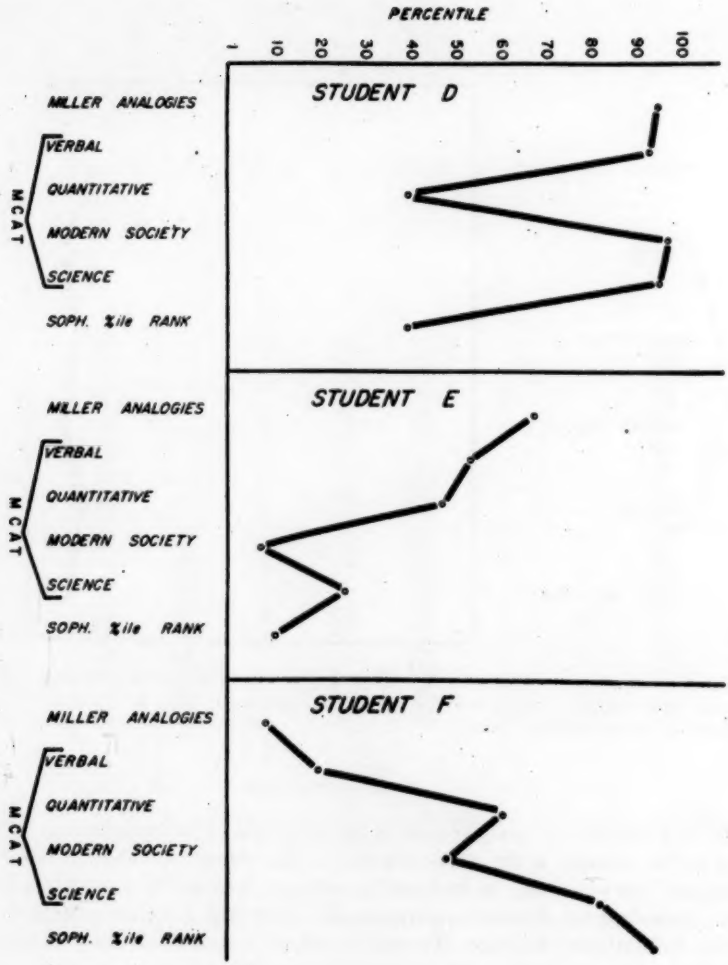

FIG. 6.—Three students' scores on the Miller Analogies and the Medical College Admission Test (MCAT), along with their percentile ranks in the class at the end of their sophomore year in medical school.

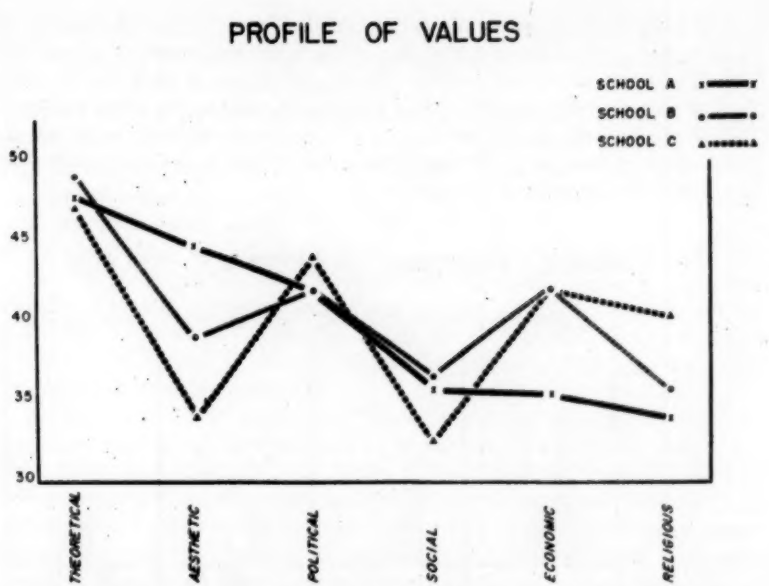

FIG. 7.—The mean scores on the Allport-Vernon-Lindzey Study of Values of students at Medical Schools A, B, and C.

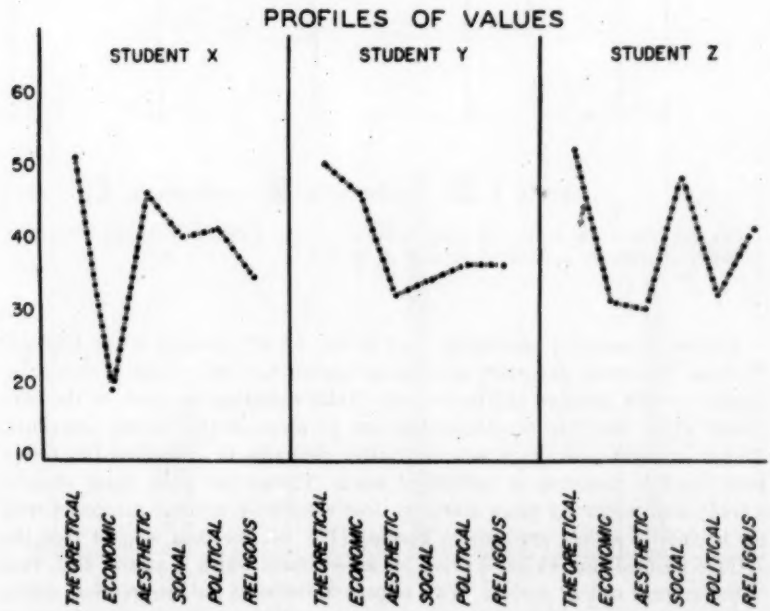

FIG. 8.—Three students' individual profiles of scores on the Allport-Vernon-Lindzey

And such atypical students do get admitted. Figure 8 shows the profiles of three students from a single school, one of whom has high Aesthetic values, one high Economic values, and another high Social values. If only one of these student patterns represents the school personality, what of the other students? Will they react more or less favorably, more or less productively to the educational program than their colleague whose value system is more congruent with that of the student body as a whole?

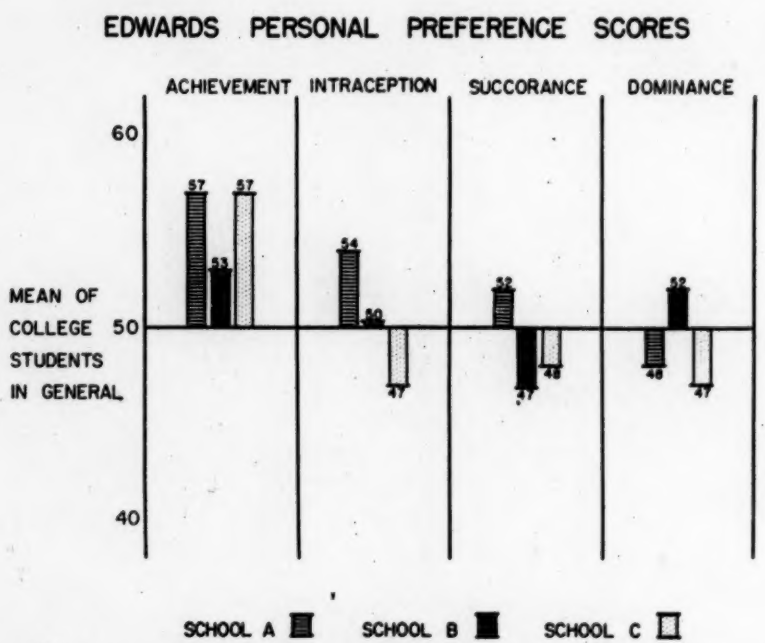

FIG. 9.—The mean scores on four variables of the Edwards Personal Preference Schedule of students at Medical Schools A, B, and C.

Another measure of personality used in the AAMC research is the Edwards Personal Preference Schedule, a paper-and-pencil test that forces a choice between carefully matched alternatives, the choice reflecting the needs of the individual which can then be categorized into 15 areas in the scoring procedure. This instrument provides scales of relative strengths of characteristics rather than absolute measures of individual needs. Taking our same three medical schools and comparing mean scores on four arbitrarily selected categories with the means for college students in general (Fig. 9), the data suggest that the average medical student has a drive for achievement which is greater than that of the average college student. With respect to the need for Intraception, which is described in terms of the test items as concerned with analysis of feelings and motivation in behavior, Schools A and C appear quite different in their opposite

deviation from the college student mean. Succorance (dependence upon others) and Dominance needs do not appear significantly different from the college mean or from one medical school to another.

Finally what do the students choose to do when they leave these three medical schools? Most of those from School A choose a straight internship, but almost none of those from School B do so (Fig. 10). Does this mean: (1) that a straight internship appeals to the high MCAT, Aesthetic, Introspective student from the professional family who is characteristic of School A; (2) that a straight internship repels the only slightly lower MCAT, Economically oriented student from the skilled worker family who represents School B; (3) that straight internship appeals somewhat to the low MCAT, Politically driven, Extraceptive student from a laboring family background characteristic of School C? Or do the choices of these students reflect characteristics of the faculties that have not been described here?

The foregoing examples have been presented only as a means of suggesting the many ways in which diversity may be evident among schools, within student bodies, and between student bodies and faculties. As pieces of descriptive information they are extremely interesting, but the only real importance we would attach to them at this moment is whether these differences have a significant effect upon what happens to students in the course of their educational program in medicine. Continuing research can help us answer such questions. As will be evident in the following sections of this chapter, some exciting starts have been made in this direction.

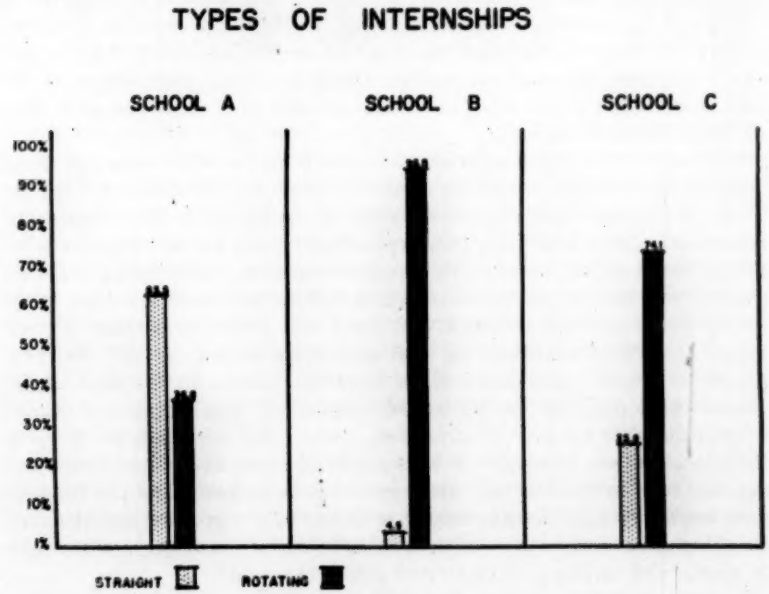

FIG. 10.—The types of internships secured by one class of graduates from Medical Schools A, B, and C.

B. Pediatric Lions and Gynecological Lambs

BY GEORGE G. STERN

Associate Professor, Department of Psychology
Syracuse University

AND

JOHN C. SCANLON

Senior Research Scientist (Sociology)
Mental Health Research Unit
New York State Department of Mental Hygiene

IT IS TO BE expected that students in a professional school will become more alike as they assimilate the same common background of knowledge and technique. They are also brought closer together by their exposure to the school's characteristic disciplinary approach and to its particular system of attitudes and values. Furthermore, in preparing for professions such as medicine or the ministry which involve an intimate personal relationship with a client, students tend to adopt a uniformity in manner for dealing with these relationships. Thus in many ways the graduates of a professional school are more alike than the entrants.

Most of the leveling influences in medical education begin to operate in the freshman year of medical school and gradually reduce the initial differences among all members of the same class. Not all of the initial differences among classmates grow smaller with time, however, for some characteristics appear to distinguish the members of various specialty groups within medicine. The purpose of the study reported here was to determine whether or not objective evidence for these presumed personality differences among practitioners of the various specialties could be obtained, and secondly to discover how early such differences begin to appear.

The term *personality* is a broad one and has been used to encompass many different facets of behavior. In the present context it shall be understood to refer to the predominant role that characterizes an individual in his interpersonal relationships. More specifically still, the term personality as employed here refers to such interpersonal characteristics as are measured by the Activities Index, an interest questionnaire similar in content to such well-known instruments as the Strong Vocational Interest Blank and the Kuder Preference Record. The respondent is asked to indicate his likes and dislikes among 300 activities of a generally innocuous and commonplace character, such as "following a regular routine every day," or "having lots of friends," or "playing practical jokes." These items were not selected at random, however, but were designed to reveal the presence of one or another of 40 psychogenic needs. In the same sense that one may refer to thirst as the consequence of a tissue need, some psychologists have found it useful to refer to orderly, or affiliative, or aggressive activities (and a number of others far more abstruse) as indicative of psychogenic needs, finite in number and varying in strength from person to person.[1]

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[1] Murray, H. A. *Explorations in Personality* (New York: Oxford University Press, 1938).

This universe of needs has been embodied in the Activities Index, and found subsequently to possess some unique qualities.[2] Statistical analysis of the relationships among the various needs has indicated, and current empirical research appears to confirm, that these needs comprise a continuum of interpersonal behavior ranging from extreme withdrawal and inhibition through increasing degrees of social participation and interaction and culminating in ascendant, aggressive, and ultimately hostile detachment.

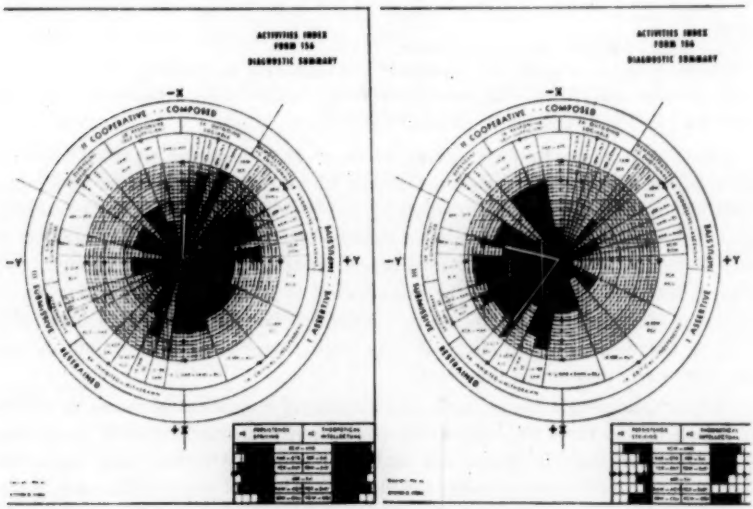

FIG. 1.—Activities Index profiles for two medical school freshmen

Two student profiles are reproduced in Figure 1. The circular format provides a graphic representation of the statistical relationships between measures of these psychogenic needs. Starting at the bottom of the circle, the left-hand segment encompasses a group of interrelated needs scales that appear to typify trends towards submission and restraint; the upper area of the circle groups needs associated with a somewhat more balanced sociability; and the right-hand segment summarizes trends of a more egocentric and domineering or aggressive nature. The rectangles in the lower right-hand portion of each profile summarized the scores obtained on two additional clusters of needs that are not involved in interpersonal processes; one of these relates to the intensity of motivation for achievement, the other to the relative strengths of various types of intellectual pursuits.

The two profiles shown in Figure 1 are of students who took the Activities Index at the time of admission to medical school. The student on the left appears to be characterized by a preponderance of needs associated with self-centered, fantasy-preoccupied, distant but domineering behavior. A high but poorly co-

[2] Stern, G. G., Stein, M. I., Bloom, B. S. *Methods in Personality Assessment* (Glencoe, Ill.: The Free Press, 1956). Also: Stern, G. G. *Preliminary Manual: Activities Index, College Characteristics Index* (Syracuse: Psychological Research Center, 1958).

ordinated drive level is also indicated, along with a wide breadth of intellectual interests. Although the faculty and administrative offices of the school were in no way aware of these findings, the following comments from the staff are in striking corroboration:

Least well adjusted—schizoid.
Strikes all of us as being in a sort of dreamlike state.
Displayed antagonistic attitude on a number of occasions when it was uncalled for.
Intelligent but doesn't get along well with people. Has a pathological quirk. Very individualistic. Does his work at irregular hours outside of class. Should be referred to a psychiatrist.
Real bright but does only average work.
Minimal laboratory work with infrequent and sometimes irrelevant participation.
A very well-read student with intensive interest in social issues. Probably limited time invested in course and capable of much better work.

The student whose profile is shown at the right of Figure 1 represents almost the opposite extreme. Her scores are almost at the maximum in areas associated with withdrawal, depression, submission, and restraint. The rectangular portion of this profile, in marked contrast to that of the preceding student, suggests a very low drive level and modest intellectual interests. Interestingly enough, this student withdrew at the end of the second week of school, giving as reasons: (1) not as much interest in medicine as originally thought, and (2) looked like eight or nine years of hard study. A very similar profile was also found for the one other early dropout in this class.

Although the profile can be made to yield extensive qualitative detail, as might be inferred from these two very brief descriptions, the mathematical properties of the interpersonal continuum are such that summary vectors and resultants may be computed for any pattern, facilitating analysis of group differences. Such vectors are shown by the arrows superimposed on the profiles in Figure 1, and it is upon the analysis of quantitative vectors such as these that the present study is based.

All entrants in two successive classes of students at the State University of New York College of Medicine in Syracuse were given the Activities Index at the time of their admission. A basic common pattern, characteristic of both classes and distinguishing them from students in other professional areas, was found. Superficially this might be described in terms of a deferent and respectful variation of the stereotypical, well-socialized, middle-class male. Although somewhat less outgoing than similarly tested engineering students, the medical freshmen were far from being as withdrawn as teacher-trainees appeared to be.

Despite this significant homogeneity, a number of different kinds of personality patterns were found among these two classes of medical students. Two lines of inquiry were pursued with respect to these differences, involving their relationship to (1) academic performance and (2) personality patterns of teachers and practitioners in several medical specialties.

With respect to academic performance, the personality patterns of the top and bottom 27 per cent of those students now in their sophomore year were analyzed. No simple one-to-one relationships could be found. Instead there appeared to be several different kinds of personalities associated with high achievement, others with low achievement.

The personnel dean's judgments were solicited in an attempt to categorize students in both classes in terms of such groupings as: problem students, failures, repeaters, health impairment, dropouts, psychiatric referrals, good adjustment, and leaders. Again no one-to-one relationship between personality syndrome and behavior category could be found, although a number of very specific needs variations were encountered. Thus psychiatric referrals were lower in need affiliation than anyone else, although indistinguishable in their variability on all other needs. Similarly the failing students had a combination of high scores involving orderly, deliberative, and blame-avoidant behavior, suggesting a high degree of compulsiveness to be associated with academic failure. These findings suggest that the relationship between personality and academic performance is highly specific. Although there appear to be particular traits associated with particular educational outcomes, there are no general personality types whose performance is predetermined.

General personality types do come into the picture, however, when specialty choice is considered. Five specialties were selected for comparison: Internal Medicine, Surgery, Obstetrics-Gynecology, Pediatrics, and Psychiatry. The personality patterns of students giving one of these areas first choice on a specialty checklist were compared with teachers and practitioners from each area who had participated in a voluntary testing program for this purpose.

TABLE 1.1

PROBABILITY LEVELS OBTAINED FROM HOTELLING ANALYSIS OF GROUP VECTOR DIFFERENCES BETWEEN ACTIVITIES INDEX PROFILES FOR STUDENTS, PRACTITIONERS, AND TEACHERS IN FIVE MEDICAL SPECIALTIES

		Speciality				
Speciality	N	Internal medicine	Surgery	Psychiatry	Pediatrics	Obstetrics-Gynecology
Students						
Internal Medicine	(26)	—	.01	.01	.01	.05
Surgery	(24)			.01	NS	NS
Psychiatry	(5)				.01	NS
Pediatrics	(10)					NS
Obstetrics-Gynecology	(11)					—
Practitioners						
Internal medicine	(21)	—	.05	.05	NS	.01
Surgery	(14)			NS	.05	.01
Psychiatry	(5)				NS	NS
Pediatrics	(6)					.05
Obstetrics-Gynecology	(4)					—
Teachers						
Internal medicine	(26)	—	NS	NS	.01	.05
Surgery	(5)			NS	NS	NS
Psychiatry	(7)				.01	NS
Pediatrics	(5)					NS
Obstetrics-Gynecology	(3)					—

Tables 1.1 and 1.2 summarize the results of an analysis of vector differences between the Index profiles for these 15 groups of subjects, based on Hotelling's t statistic.[3] As Table 1.1 shows, the specialty groups of students and practitioners differ more among themselves than do the five groups of teachers. The students

[3] Hotelling, H. "The Generalization of Student's Ratio," *Annals of Mathematical Statistics* 2, 1931, pp. 360–78. Also: Hicks, C. R. *A Study of Hotelling's Statistic and Its Application to Problems in Psychology, Education, and Industrial Research*. Unpublished doctor's dissertation, Syracuse University, 1953.

TABLE 1.2

PROBABILITY LEVELS OBTAINED FROM HOTELLING ANALYSIS OF GROUP VECTOR DIFFERENCES BETWEEN STUDENT, PRACTITIONER, AND TEACHER ACTIVITIES INDEX PROFILES WITHIN THE SAME MEDICAL SPECIALTY

	Internal medicine			Surgery			Psychiatry			Pediatrics			Obstetrics-Gynecology		
Group	Students	Practitioners	Teachers	Students	Practitioners	Teachers	Students	Practitioners	Teachers	Students	Practitioners	Teachers	Students	Practitioners	Teachers
Students	—	.01	.01	—	.01	NS	—	NS	NS	—	NS	.01	—	NS	NS
Practitioners			NS			NS			NS			NS			NS
Teachers			—			—			—			—			—
N	(26)	(21)	(26)	(24)	(14)	(5)	(5)	(5)	(7)	(10)	(6)	(5)	(11)	(4)	(3)

and practitioners each differ significantly in six of the ten possible pairs of comparisons to be made among five specialties; only three of the ten comparisons of teachers are similarly significant. Each group of practicing specialists differs on the average from 2.8 of the remaining four specialty groups. The student groups average 2.4 such significant differences, whereas each teaching specialty differs from an average of only 1.2 of the other four groups of teaching colleagues.

These data suggest that personality differences distinguish groups of practicing physicians and students who identify themselves with different areas of medical specialization, these differences being somewhat more pronounced in the case of the practitioners. Medical teachers in different fields, on the other hand, are largely undifferentiable on the basis of personality characteristics. In the present case this is due to the heterogeneity of the teachers tested; variations in personality *within* each specialty subgroup are as great as those *among* the teaching subgroups.

The personality differences among the various groups of practitioners tend to be much the same as those distinguishing the student specialty groups. As Table 1.2 indicates, in psychiatry, pediatrics, and obstetrics-gynecology the students were very similar to the practicing physicians. The students were not in every case from the same mold as the practitioner in their field, however. Students indicating a preference for surgery were more like the teaching staff in surgery than the practicing surgeons, and the students preferring internal medicine differed from both teachers and practitioners in this area. The diversity of motives behind student choices of internal medicine, and the consequent heterogeneity of this group, probably account for the latter findings. In the case of the surgeons, however, a special local circumstance appears to be involved. The students at this particular school encounter a highly charismatic member of the teaching staff in surgery early in their program, resulting in the attraction of a larger number of students to this area than had previously been the case. The basis for the self-selection is fairly unique, reflected here by the dissimilarity between students and practicing surgeons, and is not likely to be found at other institutions.

The most extreme differences, and hence the most dependable perhaps, were those found between obstetrics-gynecology and pediatrics. The pediatricians were outstanding among the five specialty groups in terms of the relative degree of socially aggressive, assertive, and demonstrative needs suggested by their Index profiles. Conversely, the obstetricians and gynecologists appeared to be much more restrained, self-conscious, and diffident than any of the other groups. Thus, among local practitioners, one would expect to find a perceptible difference in the interpersonal characteristics of pediatricians and gynecologists, the former being distinctly more outgoing and socially aggressive than the latter.

No value judgments are implied in these comparisons. Inasmuch as this analysis was based on findings from only one school, with consequently small subgroup samples subject to the idiosyncratic influences of the locale in question, this study must be regarded as a demonstration of the potential of the approach described here rather than a definitive application. However, it seems fairly certain that more adequate sampling at a variety of medical schools would lend further support to the tentative conclusion offered here regarding the relevance of personality variables in determining specialty choice for both practitioners and students.

It seems evident that such differences in personality characteristics are to some extent dependably associated with career specialty, at least among local practitioners. And to some degree, not always appropriately, these same factors are in operation fairly early in the student's considerations of career choice. Although no one would suggest that these are the only factors influencing the choice of a career, or that internships and residencies be restricted to those who fit particular molds, it seems equally inappropriate to ignore the fantasies of a student who hopes to function as a carnivore but has the teeth of a lamb.

C. Vocational Choice and Career Evolution

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Introduction

THE PURPOSE OF the following remarks is to discuss the origins of the diversity of abilities, objectives, and values that have been so well illustrated in the preceding sections. It is possible that in examining some of the sources of these remarkable diversities we may better appreciate their reality, better understand their implications, and be better equipped to provide for both the problems and the opportunities such heterogeneity furnishes.

It is easy to fall into the trap of the stereotype—that is, to think and act as if a medical school is a medical school, as if a medical student is a medical student, and as if there are basic and eternal uniformities in both. Programmatically, this stereotype might encourage the approach to medical education that what works at Harvard will also work at Wisconsin and will prove equally effective at Colorado and Stanford. Fortunately we are faced with evidence of the wide heterogeneity of schools as academic settings and of students pursuing an apparently identical goal, the M.D. degree, and this can encourage us to look upon the process of medical education as involving numerous problems that demand clinical or at least individualized solutions.

The word *career* has a certain solemn, self-consciousness about it. One does not reflect upon the subject of a career, especially one's own, without perhaps experiencing a subtle vibration to those stirring words of William Ernest Henley's *Invictus:*

> I am the master of my fate—
> I am the captain of my soul.

And a paraphrase from Sir Walter Scott's *Lay of the Last Minstrel* might also convey something of the feeling of ownership that is encouraged in contemplation of a career:

> Breathes there the man
> With ego so taut
> Who never to himself hath thought
> *This* is my own,
> My native career!

The notion that we each choose to pursue a particular star through the bright heavens of Man's work is a favorite mirage of Western culture. Like all mirages, it has some substance.

A career is an evolutionary process. Basic to this process are a half-dozen primary decisions that determine the broad framework within which the career unfolds. Tiedeman enumerates seven choices that "stand before a pupil in the elementary school: (a) choice of a curriculum in secondary school, (b) choice of a college, (c) choice of a field of concentration in college, (d) choice of a graduate school, (e) choice of an area of concentration in graduate work, (f) choice of an initial job, (g) choice among alternative job opportunities at any point in his career."[1] The career in its full and specific form is the outcome of a sequence of accidents—often happy accidents. These we customarily refer to as opportunities. But opportunities cannot be realized if basic decisions have not been made appropriate to the abilities, interests, and values of the individual.

That these characteristics are many and varied is evident from the research reported by Dr. George E. Miller and Dr. George G. Stern in the preceding sections. It is hoped that the following consideration of factors contributing to the selection of medicine as a vocational pursuit may contribute to further understanding of the diversity we find among and between faculties, among and between students.

Conditions necessary to the possibility of choice

The necessary requirement for a true situation of choice, if by choice we mean a relatively deliberate and rational selection among alternatives, is that alternatives must exist if a choice is to be made. The obviousness of alternatives facilitates the act of choosing, as does encouragement by others to consider alternatives. A student cannot be considered to have chosen a career in medicine if he has not been encouraged to some degree to deliberate upon the respective challenges and rewards of other pursuits. Frequently students say, "I have just never thought of any other work—I have wanted to be a doctor as far back as I can remember." (See Table 2.1 in Chapter 2.) Rather generally we are inclined to accept this as positive evidence of some basic, natural, and strong motivation toward the study of medicine. Perhaps in most instances this is a reasonable interpretation, but has such a student made a choice in the same sense as the student who as a college junior studied the requirements and opportunities in

[1] Tiedeman, D. V., and O'Hara, R. P. "Preparedness and Occupational Choice," *Report No. 3A, Harvard Studies in Career Developments,* 1955.

medicine, law, and business before deciding to enter medical school? If we call the first an instance of spontaneous attraction and the latter an example of deliberate selection, we might ask whether there will be any significant difference between these two people in achievement and in satisfaction at various points in their respective careers.

Finally, it should be noted that alternatives are available in proportion to the information concerning them. It has been said that nine out of ten college freshmen express definite vocational preferences (and rejections) without information about the specifics of either the preferred or rejected occupations; these uninformed preferences appear to be motivated by expectancies as to security, self-expression, and/or prestige.[2] Career information may come to the student casually or it may be the result of organized efforts to provide him with access to data about any of a number of pursuits in which he manifests some interest. The problem of broadening the base of education in a democratic society involves not only the removal of economic restrictions upon the alternatives available to the maturing student so that he may realize optimal expression of his talents, but requires further that information be available to give the student an appreciation of the full range of careers possible for him.

On the average, only half of the high school graduates of top-level ability are now entering our colleges and universities.[3] Furthermore, of those with adequate scholastic aptitude who do enter, a sizable number drop out or experience extensive difficulties in arriving at a curriculum appropriate to their interests, aptitudes, and temperament. In short, we cannot reasonably consider the problem of vocational choice without constant awareness of the conditions that limit or distort the alternatives available to our young people.

Factors influencing the choice of a career

Among the more common and significant factors that lead an individual into the selection of a particular vocational area and the subsequent pursuit of a more or less specialized career within that area are the following: (a) family tradition and parental pressures, subtle or otherwise; (b) the social prestige of the vocation; (c) the promise of economic return; (d) particular social demand, as illustrated in the current bull market for engineers; (e) personal interests, values, and motives; (f) development of strong identification with another individual who is in a given line of work; (g) unusual opportunity or encouragement (frequently as a result of demonstration of special talent) very early in life; (h) unusual early restrictions or handicaps.

The influence of the family constellation can be illustrated by the relationship between the age at which an occupational choice is made and the presence of a representative of that occupation in the family. For example, in one study it was found that of 191 medical students, interns, and residents, almost one-

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[2] Hammond, M. "Motives Related to Vocational Choices of College Freshmen," *J. Counsel. Psychol.* 3, 1956, pp. 257–61.

[3] Berdie, R. *After High School—What?* (Minneapolis: University of Minnesota Press, 1954).

fourth had decided upon medicine before entering high school.[4] Of these 45 early decisions, over half were accounted for by students as due to the fact that their father was an M.D. (33 per cent) or due to parental pressure (18 per cent). By contrast, with those whose decision came after completion of a liberal arts program, the majority related their choice to the influence of work experiences related to medicine (Table 1.3). A further finding was that the students having relatives in the field of medicine not only made early decisions but decisions that tended to be more permanent. The influence of family is further attested by the study made by Anne Roe of a sample of biological, physical, and social scientists who had achieved eminence; over half of the fathers of these top-flight scientists were professional men.[5]

TABLE 1.3

THE FREQUENCY WITH WHICH CERTAIN FACTORS WERE THE PRIMARY INFLUENCE IN THE DECISIONS OF 191 RESPONDENTS UPON MEDICAL CAREERS AT VARIOUS EDUCATIONAL LEVELS*

Factors influencing decision	Time of decision					Total	
	Before high school	High school	Between high school andcollege	Liberal arts college	After liberal arts college	N	%
Finances finally available	3	3	5	13	4	30	15.9
Association with persons, other than father, in medicine	2	4	5	12	3	26	13.8
Own ability in science	0	5	1	16	0	22	11.6
Father practicing medicine	13	3	1	0	0	19	10.0
Work experiences related to medicine	0	0	2	8	9	19	10.0
Parental pressure	8	6	1	2	0	17	9.0
"Early interest"	8	3	2	2	1	16	8.4
Need of making decision	0	2	1	7	0	10	5.3
Influence of science instructors	0	2	0	6	0	8	4.2
Influence of other instructors	0	5	0	2	0	7	3.8
Reading of medical literature	4	2	0	1	0	7	3.8
Other factors	1	1	0	1	2	5	2.1
"No idea"	4	0	1	0	0	5	2.1
Totals	45	38	19	70	19	191	100.0

* From Scantlebury, R. E. "Factors Which Influence Youth to Study Medicine," *J. Educ. Res.*, 1948, pp. 171–81.

With respect to the social prestige of vocations, numerous studies have consistently shown the bulk of high school students expressing preferences for vocation that fall into the three or four upper levels of the vocational or socioeconomic hierarchies. This distribution of student job preferences bears little resemblance to the distribution of actual job opportunities.[6] Nearly four times as many youths aspire to professional and technical work as are actually employed as such. Also, these preferences seem to reflect on the social prestige values of

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[4] Scantlebury, R. E. "Factors Which Influence Youth to Study Medicine," *J. Educ. Res.*, 1948, pp. 171–81.

Also relevant here are Tables A.30–A.42 in the Appendix; these are taken from the pre-Institute research and present such career data as age of decision and family influence for the special student respondent group.

[5] Roe, Anne. *The Making of a Scientist* (New York: Dodd, Mead and Company, 1953).

[6] Bell, H. M. *Youth Tell Their Story* (Washington, D.C.: American Council on Education, 1938).

occupations, which show a marked stability over periods as long as twenty years.[7] In rankings by students among a list of 25 occupations, that of physician changed only from second to first place in 1925 and 1946 respectively. The determinants of the prestige values of various occupations are not thoroughly understood, but it is clear that no simple linear relationship exists between the social desirability of an occupation and its income level. It would appear, however, that when students are essentially uninformed as to the nature of the work and responsibilities of various jobs, their preferences may be heavily weighted by the factor of anticipated income.

Numerous investigations have established that particular patterns of vocational interest bear stable relationship to personality variables, to characterological dimensions and facets of temperament. For example, individuals with measured personality traits of outgoingness, empathy, impulsiveness, and interest in persons reveal a pattern of occupational interests distinctly different from persons who tend to be introverted, cautious, and object-oriented. The former persons are more likely to find their way into personal service and social betterment occupations, but the latter with high frequency go into engineering, physical sciences, and other technical pursuits. Furthermore, it appears that these relationships are not the product of particular job experiences. Rather, the personality patterns are predominant, exist prior to any vocational exposure, and contribute to the individual's selection of certain vocations in preference to others.[8]

Apart from personal influence within the family circle, many individuals are first drawn to the consideration of a particular line of endeavor as a result of positive relationships and a strong identification with a much admired teacher, neighbor, or other acquaintance. The influence of teachers upon choice of vocation is undoubtedly great and has been generally recognized. It appears, however, that it may be too generally thought that their influence is an active, directive, and inspiring one. Roe's study of eminent scientists, referred to above, is revealing in this regard. Her subjects frequently noted with gratitude the influence of an early teacher whose essential contribution was that, aside from some encouragement, he set them free to pursue some investigation on their own. This early freedom to engage in the activity of research frequently generated an experience that had the effect of committing the individual irrevocably to a research career.

Aside from such happy occurrences under the aegis of formal instruction, it appears that very early experiences as a result of special opportunity are likely to play lasting directive roles in taking the individual into one field of endeavor rather than another. Likewise, early experiences of frustration or deprivation can have an influence. Roe's group of eminent scientists revealed a disproportionately large number who had lost one of their parents before age ten. Also, she found her social scientists as contrasted with her biological and physical scientists to have histories of greater rebellion against parental authority, more

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[7] Deeg, M. E., and Paterson, D. G. "Chances in Social Status of Occupations," *Occupations* 25, 1947, pp. 205–8.

[8] Darley, J. G., and Hagenah, T. *Vocational Interest Measurement—Theory and Practice* (Minneapolis: University of Minnesota Press, 1955).

intrafamilial discord, and an early and characteristically greater involvement in heterosexual and broadly social pursuits. When Terman made a follow-up study of his gifted children and looked for differences between those with scientific and nonscientific careers, he found his scientists had characteristically shown an unusual talent for scientific pursuits at a very early age.[9]

But any generalization concerning the determining role played by very early experiences is subject to the exceptions that characterize such rules. The existence of such exceptions should dissuade all educators from a comfortable assumption that the need for vocational information and guidance ends with the junior year, the senior year, or any subsequent artificial demarcation. "There is no single chronological age at which persons develop significant vocational interests. . . . Through good luck, good associations, good guidance, or exceptional talent realized, some persons develop and become vocationally well adjusted at an early age. In other cases, ill-advised parental interference, bad guidance, or some accidental influence leads to bad adjustment which begins at an early age and is long a source of frustration."[10]

If we see the actual decision to pursue a given line of study as the outcome of such a matrix of interrelated factors, we may well perceive that in applying for admission to a medical school and in subsequently pursuing the medical curriculum no two students are likely to be expressing the same background of experiences, the same perception of medicine as a career, or the same pattern of personal aspiration.

The career complex

When a career is seen as a dynamic expression of the interplay of these factors of ability, interests, motives, temperament, training, and especially opportunity, it becomes much more appropriate to conceive of the *evolution* of a career rather than the choice of a career. The individual chooses whether or not to go to college, he chooses which college he will attend, he chooses which major he will follow, he decides whether to pursue graduate study, and so on. He may choose to study for an M.D. degree, but his career in medicine evolves out of the interplay of his intrinsic qualities and the extrinsic factors in his working environment. Furthermore, out of a diversity of factors directing the individual into one broad area of study and work there evolves a wide variety of careers within that area. The complement of this diversification was appreciated by President A. Lawrence Lowell of Harvard when he observed that the diversity of requirements within a given occupation was often as great as the differences among many occupations.[11]

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[9] Terman, L. M. "Scientists and Non-Scientists in a Group of Gifted Men," *Psychol. Monog.* 68, No. 7, 1954.

[10] Carter, H. D. "The Development of Interests in Vocations," *Forty-Third Yearbook, National Society for the Study of Education, Part I—Adolescence* (University of Chicago, 1944).

[11] Lowell, A. Lawrence. *What a University President Has Learned* (New York: Macmillan Company, 1938).

Fostering career evolution

It follows naturally from the foregoing that the faculty of a professional school has a function that supersedes the simple provision of specialized training to meet the professed interests and aims of the student. It must, in addition, foster the evolution of the individual's career as a more or less unique process whereby the capacities and skills of the individual are optimally adjusted to the opportunities created by social demand.

Three methods seem basic in fostering such career evolution. First, there must be conscientious provision of information about the range and nature of career possibilities within a large professional field. Second, efforts must be made toward alert detection of special talents and encouragement of them. Third, there must be provision of opportunity for firsthand acquaintance with established workers who have evolved different careers within the field.

With respect to providing information, the needs of the student for vocational guidance do not end when he has decided upon a professional curriculum such as medicine. The field of medicine encompasses a broad range of very different careers; deliberate effort to expose the beginning student to the nature of these different careers can contribute meaningfully to the process whereby he weighs alternatives and works toward optimal self-realization.

In the course of his medical school education, the student is required to demonstrate his relative aptitudes for laboratory work, for clinical medicine, and for independent investigation. To a degree, these exposures convey self-knowledge directly to the student and can guide his thinking as to internship, residency, and further education. But his career can be assisted manifestly if his preceptors accept the responsibility for noting the presence of unusual skills or particular ineptitudes and seek actively to counsel the student toward or away from specific pursuits.

Finally, every teacher, researcher, or clinician owes it to his profession in general and to his own field in particular to make of himself a willing and accessible example—a flesh-and-blood object lesson from which the curious and undecided student may learn directly something of the frustrations and satisfactions, the challenges and sacrifices to be found in his chosen field.

The achievement of distinction in a professional career is determined perhaps 10 per cent by ability, 20 per cent by effort, and 70 per cent by luck—in other words by the fortuitous occurrence of events and experiences that lead, happily or unhappily, in one direction rather than another. A major challenge for education is to enhance the occurrence of happy accidents. By assuring that men and women of ability and drive will have opportunity to sample, at least vicariously, the realm of jobs likely to prove congenial to their interests and values, there may in truth be more choice and less chance in the making of careers.

D. The Effect of Medical Education on Attitudes: A Follow-up Study

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AS HAS BEEN documented in preceding sections of this chapter, there are important individual differences in values and objectives among different medical schools, and among students within the same medical school—still it is true that the educational experience in any particular school has a profound effect on these very attitudes of the students. Thus medical students are quite different when they graduate than they were in the first year of medical school, and furthermore, despite the individual differences that have been noted among them, in some ways the seniors seem to be cut from the same cloth. All of us who have been concerned with medical education for any length of time have noticed not only the profound changes taking place in students as they progress through four years of medical school, but how alike they all appear to be at the end of those years. This has certainly been the impression of a number of people who have written about medical education.[1] Until recently, however, there have been little objective data to corroborate these impressions. Now we are fortunate in having developed procedures by which these phenomena can be traced with some accuracy, and we have begun to accumulate data to document the changes.

A series of studies has been in progress in three professional schools at an Eastern university, and these seem to validate some of our hunches about the effect of medical education on certain aspects of personality.[2] Comparisons have been made between groups of freshman and senior medical students, nursing students, and law students, as well as between the *same* medical and law students both as freshmen and as seniors. These studies have thus far been carried out on only very limited aspects of personality, to be sure, but the results are quite straightforward.

The variables investigated are defined as follows:

1. *Cynicism:* A contemptuous disbelief in man's sincerity of motives or rectitude of conduct, characterized by the conviction that human conduct is suggested or directed by self-interest or self-indulgence.
2. *Humanitarianism:* A regard for the interests of mankind, benevolence, philanthropy.

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* The research program reported here has been supported by the Foundations Fund for Research in Psychiatry.

[1] See, for example, Harms, E. "The Professional Neurosis of the Physician," *Dis. Nerv. Syst.*, 1943, pp. 310–14; or Wyler, C. I. "Neurotic Problems in a Student Practice," *J. Lancet* 65, 1945, pp. 104–6; or Hall, O. "Stages of a Medical Career," *Amer. J. Sociol.* 53, 1948, pp. 327–36.

[2] See: Eron, L. D. "Effect of Medical Education on Medical Students' Attitudes," *J. Med. Educ.* 30, 1955, pp. 559–66; Eron, L. D. "Effect of Nursing Education on Attitudes," *Nurs. Res.* 4, 1955, pp. 24–7; Eron, L. D. and Redmount, R. S. "Effect of Legal Education on Attitudes, *J. Leg. Educ.* 9, 1957, pp. 431–43.

3. *Manifest Anxiety:* Symptoms of anxiety of which the individual himself is aware (and not necessarily unconscious anxiety).

These variables were measured by self-descriptive procedures in which the individual rates himself as having or not having certain feelings, beliefs, ideas, or items of behavior—and with what intensity or to what extent.[3] It has been demonstrated that these scales are all fairly reliable and homogeneous with a high degree of content validity.

A brief description of the scales is in order here. The Cynicism scale includes such statements as: "The law is often the refuge of slick operators." "Most people make friends because friends are likely to be useful to them." "I think most people would lie to get ahead." "If you don't look out for yourself, nobody else will." For each of the statements, the subjects rate their agreement or disagreement on seven points of certainty. The Humanitarianism scale statements are rated in the same way and include: "When I hear about the suffering of a particular individual or group, I want very much to help." "Capital punishment should be abolished, it's a cruel and inhumane practice." "The opportunity to 'do good works' is one of the most important aspects to be considered when selecting a vocation." Examples of questions appearing on the Anxiety scale are as follows: "To what extent is the adequacy of your social adjustment a source of worry to you?" "How frequently do you find that you are unable to fall asleep because of some anxiety-provoking thought or experience?" "How often do you notice that your heart is pounding for causes other than physical exercise?" On each of these questions the subject rates himself along a ten-centimeter line ranging from extreme anxiety to minimal or absent anxiety.

In the *cross-sectional* study, in which different groups of freshmen and seniors were compared, the subjects included virtually 100 per cent samples from the freshman and senior classes in each of the three professional schools during the same year. In the *longitudinal* study, in which the same subjects were seen over a period of time, there was very little attrition in the original sample of freshmen when they were retested as seniors. Thus the results can be said to be fairly representative of freshmen and seniors in each of the three schools at this university—although these results cannot necessarily be generalized to other schools

TABLE 1.4

SCORES ON CYNICISM SCALE OBTAINED BY DIFFERENT GROUPS OF FRESHMEN AND SENIORS IN THREE PROFESSIONAL SCHOOLS

School	Freshmen		Seniors			
	Mean	Sigma	Mean	Sigma	Cr	Significance
Law	133.38	30.57	124.05	27.55	2.53	.02
Medicine	114.45	21.97	125.86	20.78	2.96	.01
Nursing	119.80	22.54	108.29	23.50	2.04	.05
Freshman Medical vs. Freshman Law					5.21	.001
Freshman Nursing vs. Freshman Law					3.09	.003
Freshman Medical vs. Freshman Nursing					1.24	NS
Senior Medical vs. Senior Law					0.42	NS
Senior Medical vs. Senior Nursing					3.34	.002
Senior Law vs. Senior Nursing					3.22	.002

[3] For a description of the derivation of these scales, see the author's article in the *Journal of Medical Education* referred to above.

throughout the country, especially since each of the schools is quite unique among the general pattern of medical, nursing, and law schools.

Cynicism

Briefly, the results of the cross-sectional study in which freshmen are compared with seniors are summarized in Table 1.4 for one variable, Cynicism. From these results it can be seen that although freshman law students profess to significantly more cynical attitudes by far than do freshman medical students, the seniors in these same schools are about equal in the extent of cynical attitude expressed. On the other hand, although freshman nursing students are about

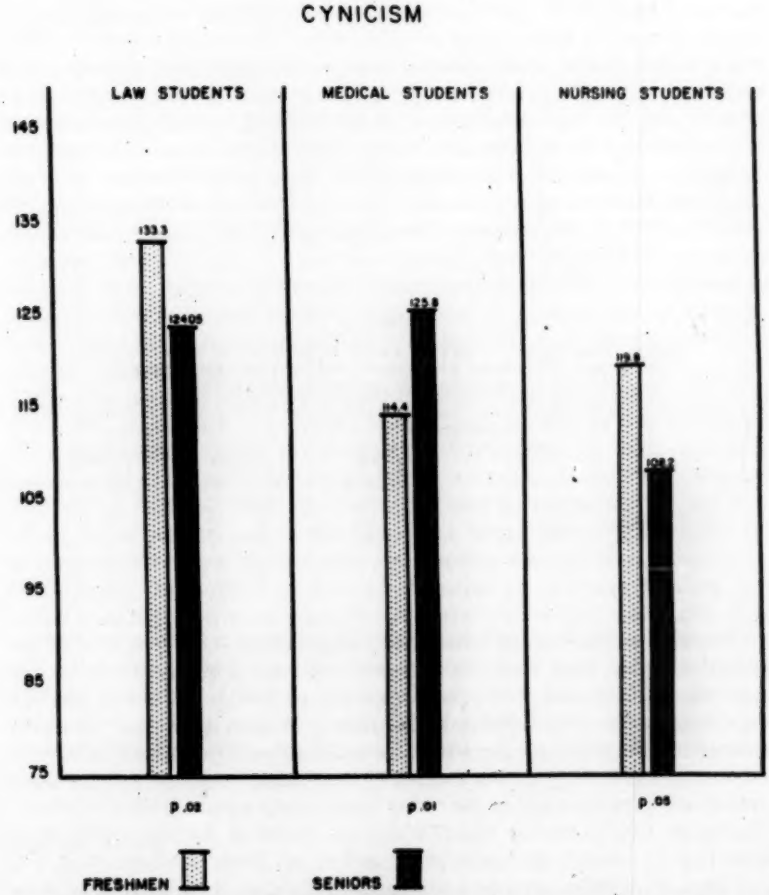

FIG. 1.—Differences in the scores on the Cynicism scale of freshmen and senior law students, medical students, and nursing students.

equal in degree of cynical attitude to freshman medical students, senior nursing students are significantly less cynical than senior medical students. The reason for this is that within the nursing and law schools the difference between freshmen and seniors is in a direction opposite from the difference between freshmen and seniors in the medical school. Senior nursing and law students are significantly less cynical than freshmen in these schools, but the senior medical students are significantly more cynical than the freshman medical students (Fig. 1).

In the longitudinal study, the same medical and law students who were tested as freshmen were retested as seniors. Unfortunately it was not possible to retest the nursing student subjects, and thus we have only the law and medical student groups for comparison. The results obtained in this longitudinal study to a large extent corroborate the results obtained in the cross-sectional study. These same students, both in medicine and law, who as freshmen were so different in the scores obtained on the Cynicism scale, now as seniors earn scores that are largely of the same order: M law school = 134.17; M medical school = 126.52. The medical students, as a group of seniors, score significantly higher on this scale of Cynicism than they themselves did as a group of freshmen: M = 114.45 ($p = <.01$). The same is not true of the law students. Something has happened to the medical students in the intervening three and a half years to change them at least on this variable. This change is even more strikingly evident when the initial and final test records for each individual medical student are compared as in Table 1.5. In this comparison it is found that 55 subjects get higher scores

TABLE 1.5

TOTAL NUMBER OF SUBJECTS WHOSE SCORES ON SCALES CHANGE IN GIVEN DIRECTION AT RETEST AND NUMBER WHO CHANGE BY MORE THAN ONE STANDARD DEVIATION

	Medical students				Law students			
	+change		−change		+change		−change	
Scale	Total	>sigma	Total	>sigma	Total	>sigma	Total	>sigma
Cynicism	55	30	18	6	41	5	47	2
Humanitarianism	23	3	47	13	41	11	46	7
Anxiety	36	12	37	11	33	5	53	18

on the retest and only 18 get lower scores; 30 get scores more than one standard deviation higher than their original score, and only 6 get scores more than one standard deviation lower than originally ($p<.001$). Of course, as these data indicate, there *are* individual differences, with some students getting lower scores on the scale of Cynicism after three and a half years of medical education; however, a significantly greater number of them change in the direction of more cynical attitudes expressed at the end of their undergraduate medical education. This is not true in the law school, where the results of the longitudinal study show that 41 students get higher scores and 47 get lower scores on retest, only 7 of these 88 differing more than one standard deviation from the original score. Thus in the law school the effect of the educational experience on expressed cynical attitude would seem to be more random than in the medical school.

TABLE 1.6

SCORES ON HUMANITARIANISM SCALE OBTAINED BY DIFFERENT GROUPS OF FRESHMEN AND SENIORS IN THREE PROFESSIONAL SCHOOLS

School	Freshmen		Seniors			
	Mean	Sigma	Mean	Sigma	Cr	Significance
Law	120.15	16.21	126.39	14.29	3.16	.003
Medicine	122.18	16.09	124.43	14.12	.87	NS
Nursing	132.15	14.34	125.65	12.18	2.12	.05
Freshman Medical vs. Freshman Law					.88	NS
Freshman Nursing vs. Freshman Law					4.87	.001
Freshman Nursing vs. Freshman Medical					3.46	.001
			Senior Medical vs. Senior Law		.92	NS
			Senior Law vs. Senior Nursing		.37	NS
			Senior Nursing vs. Senior Medical		.44	NS

Humanitarianism

In regard to the second variable, Humanitarianism, senior and freshman medical students in the cross-sectional study are not very different when group means are compared, as in Table 1.6. However, in the other two schools there are differences: senior law students are significantly more humanitarian than freshman law students, and senior nursing students are significantly less humanitarian than freshman nursing students. It is interesting that, although the freshman nursing students profess to significantly more humanitarian attitudes than freshman medical students, the senior nursing and medical students obtain scores of about the same order. This phenomenon of diminishing humanitarian feeling in nurses has been observed in a number of other studies, at least impressionistically. (Our data here as they relate to nurses, of course, refer only to cross-sectional results.)

The data from our longitudinal study of medical and law students show that group data mask some real changes in individual students on this variable of Humanitarianism. Although the mean group score obtained by these subjects as freshmen ($M = 122.18$) is not much different from that obtained when they are seniors ($M = 117.15$), when we analyze the data by individuals we find that, as seniors, 47 subjects receive lower scores on Humanitarianism than they did as freshmen, 23 receive higher scores, and 3 exactly the same score (Table 1.5). Of those who change, 13 score lower by more than one standard deviation, and only 3 score higher by more than one standard deviation ($p < .02$). Again there are individual differences, but significantly *more* students change toward the less humanitarian end of the continuum than the other way. Again the same is not true in the law school; here the changes in individual students are more randomly distributed, with 41 getting higher scores and 46 lower scores, and only 11 of the higher scores and 7 of the lower scores exceeding the original by more than one standard deviation.

Manifest Anxiety

The results of cross-sectional study of the variable Manifest Anxiety are summarized in Table 1.7, and one interesting finding is that law students are significantly more anxious than medical students. However, this is less true of

seniors than it is of freshmen. The longitudinal study corroborates the finding that, as seniors, law students are less anxious than they were as freshmen, although there is no difference in level of anxiety between medical students as freshmen and as seniors. There seems to be increasing emotional security for law students as they increase their fund of knowledge and experience, but not so for medical students. The mean score for the medical students as freshmen is 131.85 and when they are seniors the mean is 129.98.

Thirty-six medical students receive higher Anxiety scores as seniors and 37 receive lower scores, with one-third of each of these directional changes greater than one standard deviation. In the law school the mean score for the subjects as seniors is 142.75, but when they were freshmen it was 149.27. Fifty-three law seniors receive lower Anxiety scores on retest, 18 of which are beyond one standard deviation, and 33 receive higher scores, only 5 of which are beyond one standard deviation ($p.<.01$). Thus it is seen that the effect on anxiety is much *less* random in the law than in the medical school. In general, the trend is for reduced anxiety among law students as they go from freshmen to senior years, but in the medical school (where there are lower Anxiety scores) there is no demonstrably consistent effect on manifest anxiety level.

TABLE 1.7

SCORES ON SCALE OF MANIFEST ANXIETY OBTAINED BY DIFFERENT GROUPS OF FRESHMEN AND SENIORS IN THREE PROFESSIONAL SCHOOLS

School	Freshmen		Seniors		Cr	Significance
	Mean	Sigma	Mean	Sigma		
Law	149.27	37.64	147.88	35.61	.28	NS
Medicine	131.85	31.70	132.45	30.28	.11	NS
Nursing	136.98	42.79	147.23	43.66	1.03	NS
Freshman Medical vs. Freshman Law					3.60	001
Freshman Nursing vs. Freshman Law					1.65	NS
Freshman Medical vs. Freshman Nursing					.68	NS
			Senior Medical vs. Senior Law		2.76	01
			Senior Law vs. Senior Nursing		—	NS
			Senior Nursing vs. Senior Medical		1.74	NS

Some implications

No attempt will be made in this paper to discuss and interpret these findings; for example, if it is or is not a necessary and/or desirable thing that medical students get more cynical in the course of their training. An interesting quotation from Lord Byron's *Don Juan* is perhaps appropriate here: "And if I laugh at any mortal thing, 'tis that I may not weep."

The implications of these results might be better left to discussion by those in the individual medical schools. As yet we have not analyzed all the data deriving from our longitudinal study as to differences between those students who become more cynical and those students who do not; for example, in the future we intend to investigate these students in terms of such other variables as internships and socioeconomic factors, all of which might be relevant. However, we do have some data from our cross-sectional study dealing with the relationship between Anxiety and the other two variables, and these may highlight the implica-

tions of the findings. These data were derived in a crude way by comparing in each of the schools the ten seniors with the highest Anxiety scores and those with the lowest Anxiety scores on each of the other two variables. The results of this analysis are shown in Table 1.8 and Fig. 2 for one variable, Cynicism. Here it is seen that in the medical and nursing schools the most anxious subjects are significantly more cynical than the least anxious subjects, while the opposite is true in the law school. Thus if we conceive of cynicism as a defense against anxiety, it would seem that with medical and nursing students cynicism is an unsuccessful defense, but with law students it is a successful one—since in the former instance as Cynicism scores go up Anxiety scores also go up. If it were a successful defense, then increased cynicism would go along with diminished anxiety, as it does with the law students. Of course, it might be that because of different kinds of experience these medical students might even have been more anxious if they did not have this defense.

When the high-anxious subjects are compared with the low-anxious subjects on Humanitarianism, as summarized in Table 1.9, it is found that in the law school there is no difference between these two groups of subjects. In the nursing school, however, the most anxious subjects are significantly more humanitarian than the least anxious, while the reverse is true in the medical school. Thus it would seem that in the nursing school a decrease in humanitarianism, perhaps, may be looked on as a way of defending against anxiety too, since those who are

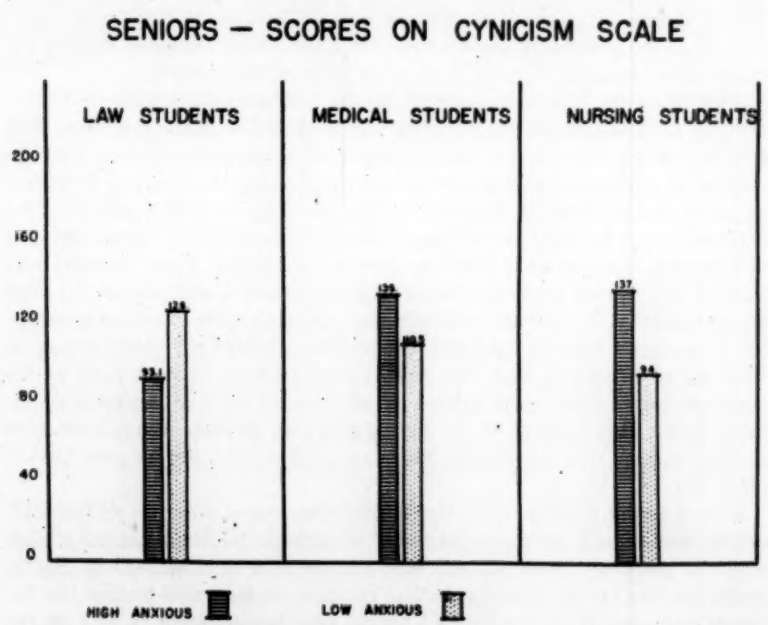

FIG. 2.—A comparison of the scores on the Cynicism scale of senior law students, medical students, and nursing students with high and low scores on the Anxiety scale.

TABLE 1.8

DIFFERENCE IN SCORES ON CYNICISM SCALE BETWEEN THOSE SENIOR SUBJECTS SCORING HIGHEST AND LOWEST ON THE ANXIETY SCALE

	Medical school	Nursing school	Law school
High Anxious	135.0	137.0	93.18
Low Anxious	110.5	94.0	126.00
Diff.	24.5	43.0	33.00
t	2.27	5.12	2.61
df	18	10	20
Significance	.05	.01	.02

TABLE 1.9

DIFFERENCE IN SCORES ON HUMANITARIANISM SCALE BETWEEN THOSE SENIOR SUBJECTS SCORING HIGHEST AND LOWEST ON THE ANXIETY SCALE

	Medical school	Nursing school	Law school
High Anxious	107.2	124.8	129.0
Low Anxious	121.5	113.3	127.7
Diff.	14.3	11.5	1.3
t	2.03	4.10	.21
df	18	10	20
Significance	.10	.01	NS

low-anxious are not as humanitarian as the high-anxious subjects. In the medical school, however, a decrease in humanitarianism is not the by-product or concomitant of diminished anxiety. Rather, the low-anxious seniors are more humanitarian than the high-anxious ones.

These studies also give us some evidence, tangentially at least, of the homogenizing or leveling effect of the medical school experience. This is in terms of the amount of variability of these measures as reflected by the standard deviation. On practically all measures (and a number of scales besides the ones reported here were used), the standard deviation among seniors is smaller, usually significantly so, than among freshmen. This phenomenon is not due to attrition, as can be seen in the high rate of subject survival from the original to the final sample. Thus it cannot be called an artifact resulting from a tendency for the misfits to drop out as the class proceeds from the first to the fourth year. Also, because of the contrasting results from the other two professional schools, the results here would not seem to be an effect of increasing maturity.

Since these findings were reported at the Institute, the results of further analysis of data have become available. These should be referred to here, since they corroborate some of the interpretations on a longitudinal basis. That the erection of cynical defenses is not necessarily essential to *success* as a student physician is seen when we compare the class standing on Parts I and II of the National Board Examination of those medical students who increase or decrease in Cynicism score by more than one standard deviation. Those students who increase in Cynicism score tend to do better on the basic science part (I) than on the clinical (II), whereas those who decrease in Cynicism score do better on the clinical part than on the basic science. The students who don't change in Cynicism score tend to have the same relative position on both parts of the National Boards. Those medical students who become less cynical have a significantly better class standing on the clinical part than do those who become more cynical: average standing 35.8 for the less cynical vs. 45.1 for the more cynical ($N = 82$).

From a similar analysis of the Humanitarianism scores, however, we find indications that a loss in humanitarian feeling is, perhaps, facilitating in the clinical aspect of medicine. Those students who become more humanitarian do significantly less well on the clinical part than do those students who become less humanitarian: average standing of 54.3 for the more humanitarian vs. 36.2 for the less humanitarian. The lessening of anxiety also seems to facilitate performance on the clinical part, since those students who become more anxious have a lower

class standing on the clinical part (average 43.9) than do those students who become less anxious (average 33.4).

In summary, the more recent analysis corroborates the interpretation of previous findings that medical students, as they progress through medical school, increase in the verbal expression of cynical attitudes and conscious symptoms of anxiety and decrease in the expression of humanitarian feeling. This is not true of students at comparable levels of development pursuing a career in law. It has been suggested by others that the increase in cynicism and the decrease in humanitarianism are necessary defenses against anxiety. If this is so, these data would indicate that the defense of increased cynicism is neither successful in allaying anxiety nor helpful in clinical performance as measured by the National Boards.

Through these studies, then, we have been able to substantiate and pinpoint, with more or less objective procedures, the feelings that many of us have had about how students change in the course of their undergraduate medical education—and yet how this experience has a sort of homogenizing or leveling effect on them so they are more alike in many extracurricular ways than they were at the beginning. Whether these effects are just temporary or carry over through internship, specialty training, and practice must await further research effort.

In closing I would like to emphasize that, although attitudes are not necessarily the equivalent of overt behavior, they are of importance in themselves. Furthermore, the attitude scales used in the studies reported here measure nothing more or less than verbal behavior, and it is through verbal behavior primarily that the physician communicates with the patient and the patient gets to know the physician.

CHAPTER 2

The Implications of Diversity

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THE GREAT DIVERSITY of medical students and of medical schools has been documented and discussed from several standpoints in the preceding chapter. My purpose here is to explore the implications of these data for medical education. They permit no ready answers to any of the problems posed, but they do allow us to raise many pertinent questions. Once these are stated, answers can be sought by objective means.

The importance of diversity is an old concept. Noah took unto the ark two of everything so the earth could be repopulated. Thus we take all kinds of students into our schools so we can repopulate the medical profession. Only in this way can we obtain the great variety of doctors needed by society.

DIVERSE CHARACTERISTICS OF MEDICAL STUDENTS

Scholastic aptitudes

There is a remarkable diversity among American medical students in scholastic aptitudes, values, social class backgrounds, personality variables, and other measurable characteristics which can be related to their medical school experiences. First, let us consider the matter of scholastic aptitudes. It is difficult to teach in the same way students who show great differences in basic intelligence and aptitudes. One cannot expect as much academically from those with less intelligence. This is true even though in the case of student physicians we are speaking, not of students in general, but of an exceptionally able group of students. Nevertheless, there are still vast differences in scholastic aptitude among them. At Yale, Davies found that very able students were much more critical and much more dissatisfied than their classmates.[1] The interpretation of these data is that the fine scholar has a highly critical mind; it is the task of the teacher to channel such dissatisfactions and critical abilities into constructive channels. Students who are not outstanding academically are less critical and less imaginative.

Dr. George E. Miller (see Section A, Chapter 1) gives examples of differences in the qualities of scholastic aptitudes in the verbal and quantitative areas as measured by the Medical College Admission Test (MCAT). Students with high Verbal scores have great facility for learning subjects such as literature, languages, and the social sciences; students with high Quantitative scores have facility in learning mathematics and the natural sciences. Roe has documented these differences in basic endowment of successful men in these different fields.[2]

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[1] Davies, J. Personal communication.

[2] Roe, A. *Psychology of Occupations* (New York: John Wiley & Sons, 1956).

In a medical school, although the great majority of students do not have disparate kinds of scholastic aptitudes, there are a number with high Verbal and relatively low Quantitative scores and others with relatively low Verbal and high Quantitative scores. The former group is usually able to learn psychiatry easily but may have difficulties with biochemistry; the latter group usually learns biochemistry easily but has difficulties with psychiatry. This is only a documentation of students familiar to every medical teacher—the wizard in languages and social sciences, with difficulties in mathematics and the natural sciences; the wizard in mathematics and the natural sciences with difficulties in languages and social sciences. If a curriculum is so standardized that the same is demanded of all students, and all are taught in the same way, a number of students with unusual aptitudes are going to have difficulties. For example, if in teaching biochemistry the requirements are geared to the high quantitative men, the low quantitative men with high verbal skills will have great difficulties and may even fail; if geared to the low quantitative men, the high quantitative men may not be stimulated to learn as much of the subject as their potential permits. Conversely, if in psychiatry or the social sciences a course is geared to the high verbal student, the low verbal student is likely to have difficulties; if to the low verbal student, the high verbal student may be deprived of his maximum stimulus to learn.

Actually since both psychiatry and biochemistry are extremely important subjects in a modern doctor's education, all students need a knowledge of both. The courses should be taught, however, with flexibility of expectations and standards. Otherwise, if we persist in our efforts to teach all alike and make the same demands on them, we will increase the frustration, anxiety, and hostility of many students who may actually learn less than they would under more optimum conditions. Certainly, experiments are needed in teaching methods and the use of different curricula in relationship to the aptitudes of the individual students. A beginning in understanding this problem could be made by departments in medical schools. This could be accomplished by assessing their students' performance in particular courses in relation to their aptitudes as measured by their Medical College Admission Test scores, which are available at admission offices.

One interesting experiment is now under way in a college biology department. Students are tested for their ability to make accurate observations of natural phenomena. If this ability is high, they are given a course that is chiefly a laboratory one. If they cannot observe accurately (such students are usually those who are taking the subject to fulfill requirements), they are given a course with lectures, demonstrations, and discussions without any laboratory work.

Another interesting facet of this problem is the place of the social sciences in a program of medical study. With the overcrowded curriculum of the present day, where is it possible, for medical students who will eventually enter psychiatry as a career, to obtain education in the basic sciences of psychoanalysis, psychology, sociology, and cultural anthropology so needed in this specialty? Kubie has discussed this problem and offered a possible solution.[3]

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[3] Kubie, L. S. "Need for a New Subdiscipline in the Medical Profession," *AMA Arch. Neurol. & Psychiat.* 78, Sept. 1957, p. 283.

Personality characteristics

Next let us examine some of the implications of the vast differences in the personality characteristics of different medical students. First, a brief mention of a subject reported at last year's Institute. Wispe found that students with different personality characteristics learn differently in different types of classroom situations.[4] He found that highly extrapunitive students had difficulties in learning in highly structured teacher-centered classes; highly intropunitive students had difficulties in unstructured pupil-centered classes. Dr. George G. Stern also reports differences in learning ability in relation to personality and has set up experimental classroom situations to study the interaction between teachers and students.

FIG. 1.—Differences in the psychological need for intraception and the performance of medical students.

The data collected on students by Dr. Helen Hofer Gee using the Edwards Personal Preference Schedule showed that certain students are high and others low in the *need for intraception*. This may be defined as a need for understanding one's own and others' feelings and motives. The teaching of psychiatry to students with strong needs for intraception presents quite a different problem from teaching psychiatry to students with relatively weak needs for intraception (Fig. 1). A fertile field for investigation is the relationship of various personality needs of students to their abilities to learn different subjects and to their response to different teaching methods.

There is abundant evidence that, if intellectual ability is constant, students will still function quite differently in a college or medical school on the basis of their personality characteristics. Dr. Stern reports that students with certain psychological needs are apt to become psychiatric referrals, and that other students with certain other psychological needs are apt to do poorly academically.

The immediate reaction of most educators to such data is that these men should have been identified through testing prior to admission and denied admission. The solution to the problem is not quite that simple. At the present level of psychological test development, although significant predictions of success or failure can be made, there are many exceptions. It is also true that many medical

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[4] Wispe, L. G. "Evaluating Section Teaching Methods in the Introductory Course," *J. Educ. Res.* 45, 1951, p. 161. See also: Gee, H. H., and Cowles, J. T. (eds.) *The Appraisal of Applicants to Medical Schools* (Evanston, Ill.: Association of American Medical Colleges, 1957), pp. 104–6.

schools do not have a sufficient number of highly qualified applicants (e.g., they are limited from a geographical standpoint) and thus must choose from their limited pool even when they suspect in advance that some of the students will have difficulties. Furthermore, one rather challenging question might be asked: If the students who are not doing well in a particular medical school have certain characteristics in common, how much could the faculty be contributing to the failure of these students? Perhaps the failure lies in the teaching, or perhaps in an environment that is not conducive to the development of particular types of students. Perhaps the requirements are too rigid to make exceptions for students with unusual personality characteristics or educational aims. Perhaps the medical school as a social institution fails to provide the crucial needs of these students, who might flourish in a different school. It is well known that some students who leave medical school receive psychiatric help and later return, eventually going on to fine medical careers. Some who fail in one college succeed in another.

Rather than be concerned about students who go to the psychiatrist, perhaps we should be concerned with those students who for one reason or another have difficulties and do not go to the psychiatrist. Perhaps we should be even more concerned with the role the schools play in these psychiatric difficulties. Perhaps the school as a social system is not allowing adequate solutions for the problems of certain students.

Medical students also differ from each other in their values as measured by the Allport-Vernon-Lindzey Study of Values. The three individual profiles shown in Section A, Chapter 1, suggest several pertinent questions: Does the student with high Aesthetic values need still more liberal arts in medical school? Should we deplore the student with high Economic values as undesirable in medicine, since from the standpoint of faculty members low values in this area are considered important? What of the future doctor with high Social values? Actually no answers to these questions can be forthcoming without considerable research work.

If it seemed desirable to attempt to change the values of a student, such as the one with high Economic values, what techniques would we use? Values are deeply set aspects of the personality, principally acquired during early childhood. They are difficult to change when the individual has reached medical school age. Jacob in a review of the literature found little evidence that values were changed during college.[5]

Choice of specialty

Still another area in which individual differences are of great importance is in the choice of a career. Alan Gregg states the problem as follows: "Although it is convenient to coin such abstract and collective terms as Great Medicine, we shall not understand the future of Great Medicine unless we understand the human beings who go into the medical and paramedical professions, and why and how they choose such careers."[6] In the preceding chapter, Dr. William

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[5] Jacob, P. *Changing Values in Colleges* (New Haven, Conn.: The Hazen Foundation, 1956).

[6] Gregg, A. *Challenges to Contemporary Medicine* (New York: Columbia University Press, 1956).

Schofield (Section C) describes the multiplicity of factors that go into the selection of a career. The individual's personality characteristics, aptitudes, interests, and social, cultural, and family backgrounds are factors of extreme importance. A number of research studies are under way seeking to elucidate personality differences among specialists and students electing different fields of medicine. Dr. Stern in the preceding chapter presented data from such a study. Other factors important in career choice are the information the student has about various fields and the opportunities he has for identification with workers in specific fields.

If we think of the career in an evolutionary sense and based on experiences unique to the individual student, we in the medical schools should be able to aid all students more effectively in making their choices of a specialty. Each school has the task of providing information to its students about various possible careers, of providing opportunities for firsthand acquaintance with established workers in various fields, and of detecting and encouraging special interests and talents among the students. Psychological tests can help the medical school in this task. Interest inventories such as those developed by Strong are valid instruments for measuring the interests of students in various areas. Little use has been made of them in counseling medical students.[7]

Just as it is extremely important for the college student who is considering medicine as a career to have personal contact with physicians in order to learn how such men work and what kind of people they are, so the medical student needs close personal relationship with doctors in a variety of specialties in order that he may choose the medical field that best suits him as an individual. However, important as the physician is as an object of identification by the medical student, there is one grave danger—the teacher may use his relationship with his pupil to influence unduly his choice of a specialty. Too many professors in medical schools boast yearly of the number of graduating medical students their department has succeeded in enticing into their specialty, as if to say, "I am a fine professor of surgery because 35 members of the class will go into surgery," or "I am a great professor of psychiatry because 25 members of the graduating class are going into psychiatry." Rather be it said, "I am a good professor of whatever specialty because I have helped 25 medical students enter the specialty that best suits their needs, personalities, aptitudes, and interests." In this way, they will reach their greatest potential, derive their greatest satisfactions from their work, and make their best contributions to medicine.

Another major aspect of this problem is society's need for doctors in special fields. A pertinent example is the marked shortage of specialists in the public health field; at the present time far too few graduates of American medical schools elect this field to fulfill society's needs. In seeking a solution to this problem, either we have to admit to medical school more students who are apt to seek careers in public health, or those in public health must face the task of re-examining their field to learn in what ways it does not meet the needs and aspirations of today's students. This is an extremely complex problem. Should

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[7] Strong, E. K., Jr., and Tucker, A. C. "The Use of Vocational Interest Scales in Planning a Medical Career," *Psychol. Monogr.* 66, No. 9, 1952. Also: Strong, E. K., Jr. *Vocational Interests of Men and Women* (Stanford, Calif.: Stanford University Press, 1943).

the medical schools respond to the pressures of society for certain kinds of doctors? If so, how is this best accomplished?

Many medical educators are curious about the interrelationships of the various characteristics of students mentioned. There is no pat answer. Although research shows that many traits do tend to cluster together significantly, there are many exceptions—the human personality is capable of showing infinite variety by many combinations of traits. The information we are accumulating on individual differences of medical students, only a fraction of which is referred to here and in the preceding chapter, emphasizes the great diversity that exists among students. It suggests the magnitude of the problem for medical education in offering each individual a maximum opportunity to develop his own unique potential.

DIVERSE CHARACTERISTICS OF MEDICAL SCHOOLS

Let us now turn from the diverse personality characteristics of American medical students to a consideration of the great diversity of medical schools within the United States. There are many ways to document this diversity, such as public vs. private support, differences in alumni characteristics (e.g., the number of men in academic medicine vs. the number in practice), national vs. local geographical distribution of students, and many others. For purposes of the Institute we have chosen to document these differences in schools on the basis of the different distributions of the characteristics of the students within the schools. These students are in the schools as the result of self-selection and selection by the schools, subject to certain geographic limitations.

Three types of school

Three medical schools were chosen by Dr. Miller in the preceding chapter to illustrate extreme examples of these differences in the characteristics of their student bodies. The schools differed in their students' scores on the Medical College Admission Test (MCAT), in the educational level and occupations of the students' fathers, in the students' values as measured by the Allport-Vernon-Lindzey Study of Values, in the personality characteristics of the students as measured by the Edwards Personal Preference Schedule, and in the types of internships chosen by their graduates.

Although all schools contain all types of students, the predominance of students with certain characteristics within a given school will determine to a great extent the atmosphere and opportunities the school will be able to make available to its students. For example, a school in which the students have very high scholastic aptitudes can have a much more demanding curriculum and a different type of teaching than schools where the students' scholastic aptitudes are relatively low. Davies' work at Yale, referred to above, is pertinent to this matter. He found that very able students at Yale were much more critical and much more dissatisfied than their classmates. Thus in a school containing large numbers of very bright scholars the criticism from students, although usually pertinent, can often be extremely trying to the faculty.

Differences in the level of education and occupations of the students' fathers in various schools are particularly striking. For example, at Dr. Miller's School A, the majority of the students' fathers are professional men with postgraduate educations; at School C, the majority of the students' fathers are in skilled and semiskilled occupations, with a high school education or in many cases even less. Occupation and educational levels are two of the principal variables used by sociologists in determining social class. This term brings up unfavorable connotations in the minds of many, but it is still a valid concept. Let me illustrate this by a story told by a sociologist. When teaching at a state university, he always opened his first class of the year with the remark, "No matter what you have been told, there is such a thing as social class in America." This would precipitate a heated discussion that lasted several weeks, during which the students would continually bring added ammunition in the form of books from the library. When this sociologist began teaching at an Eastern private college, he again opened his first class with the remark, "No matter what you have been told, there is such a thing as social class in America." Not a single student made a remark of any kind.

On the basis of the data mentioned above, we may say that School A contains many more students who come from upper middle class or upper class backgrounds than does School C, which contains men from predominantly lower middle class or lower social class backgrounds. Using psychological and sociological findings based on research by other investigators with other groups, let us speculate on some answers to the question: What are some of the differences in the characteristics which we would expect to find in the students in these schools?[8]

In an undergraduate college where the majority of the students' fathers are professional men, particularly doctors, teachers, and clergymen, it is hypothesized that the students in the majority of cases will follow "responsive careers," to use Miller and Form's term; their career choice will be limited to those permissible in their subculture, "one generation simply reproduces the standards of another."[9] McArthur found that in such a group, career choice does not in a number of instances correspond at all to the measured interests of the subjects as determined by the Strong Vocational Interest Blank; in his studies career choice was based on cultural and family factors.[10]

In a college where the majority of the students' fathers have skilled or semiskilled occupations, it is postulated that the students will in the majority of cases, to use again Miller and Form's term, follow "ambitious careers" in which social mobility and all its concomitants are of prime importance. McArthur found that the career choices of men from such backgrounds often correspond

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[8] Dr. Charles C. McArthur of Harvard College was of great aid in preparing this section on social class. See also his paper: "Personalities of Public and Private School Boys," *Harvard Educational Review* 24, 1954, p. 256.

[9] Miller, D. C. and Form, W. H. *Industrial Sociology* (New York: Harper & Bros., 1951).

[10] McArthur, C. C. "Long-Term Validity of the Strong Interest Test in Low Subcultures," *J. Appl. Psychol.* 38, 1954, p. 546. Also: McArthur, C. C. and Stevens, L. B. "The Validation of Expressed Interests as Compared with Inventorial Interests: a Fourteen-Year Follow-up," *J. Appl. Psychol.* 39, 1955, p. 184.

to their measured interests. Although social mobility is of great importance, somehow these students manage to get into that career which corresponds to their own interests.

This difference in students based on their social class background can also be described in Kluckholm's terms.[11] Sons of professional fathers, although showing a *doing* orientation, are also apt to be *being* and *being-in-becoming* oriented. The use of the term *doing* is self-explanatory. *Being* means interest in the type of person one is, and *being-in-becoming* refers to the old Greek ideal of the well-rounded man who develops all of his capacities rather than a particular one. Sons of skilled and semiskilled laborers are much more apt to be *doing*-oriented, with little interest in *being* or *being-in-becoming*.

Support for such interpretations of the social class data comes from research using the Allport-Vernon-Lindzey Study of Values. In Medical School A, the *being* and *being-in-becoming* orientation is confirmed by the high scores made by students on Aesthetic values as compared with the students in School C. Students in this latter school, reflecting more closely the values of the society from which they are drawn, would be expected to be higher on Economic values and Religious values than students in School A. The test scores confirm this.[12]

It should be clearly understood that the A and C medical schools chosen for illustrative purposes are at the two ends of a continuum. Probably all medical schools can be placed on such a continuum, with each school lying further toward one end of the continuum than the other. This is well illustrated in the data on School B, which place it near the midpoint of the continuum. On their scholastic aptitudes, on the educational and occupational level of their fathers, on their values, and on their personality characteristics, students in School B are approximately midway between the students at Schools A and C.

Ideistic vs. pragmatic schools

Farnsworth, Funkenstein, and Wedge, using similar data, described a continuum of different types of undergraduate colleges.[13] At one end of the continuum were colleges termed extremely "ideistic"; at the other end of the continuum were colleges termed extremely "pragmatic." These differences were defined as follows: "An ideistic culture is one in which there is great concern with intro-

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[11] Kluckholm, F. R. "Dominant and Substitutive Profiles of Cultural Orientations: Their Significance for the Analysis of Social Stratification," *Social Forces* 28, 1950, p. 376.

[12] It should be realized, when speaking of social class, that there are many individual variations within such categories and that many students who come from predominately upper class homes show predominately economic values and are *doing*-oriented, whereas many students who come from predominately lower or middle class homes show service orientations and are *being*-oriented. When we refer to these differences based on social class, we are talking about the majority within such classes. Actually what to look for in the individual student should be his aptitudes and interests and whether or not he has values consonant with intellectual achievement and service to the community. People with such values are more apt to come from families that have similar values. This brings to mind Alan Gregg's radical suggestion that the parents of students be interviewed to determine such matters. Already, at the University of Florida for one, the wives of students are interviewed.

[13] Farnsworth, D. L., Funkenstein, D. H. and Wedge, B. *A Study of the Social and Emotional Adjustment of Early Admission Students* (New York: The Fund for the Advancement of Education, 1956).

spection, with self-understanding, with abstract ideas, with the arts, and with literature; the Socratic dictum 'know thyself' is all-important. A pragmatic culture is one in which the emphasis is on work and achieving concrete goals. Little value is given to introspection, to ideas in the abstract, to the arts, or to literature." An even more vivid description of this difference in orientation appeared in the *Christian Science Monitor*:[14]

> Some people can learn from the abstract (from books, lectures, laboratory), and then reapply to the concrete. Others, equally valuable members of society, as one impish observer put it without disparagement, "have concrete heads." They learn from doing, from experience, from contact with things more than words.
>
> The latter are likely to be interested in learning more of the narrative of history (a junior college emphasis) but less in venturing upon the philosophy of history (an emphasis in further study)—interested in learning more about how the economic system or jet turbines work than in studies of the theories of economics or thermodynamics. They would enjoy more sampling of literature without getting too far into literary criticism. . . . The more education is able to adapt to this truism the more of its problems it will solve.

The data on medical students presented by Dr. Miller suggest that medical schools can also be placed on such a continuum. School A would represent an extremely ideistic school and School C an extremely pragmatic school. The Edwards Personal Preference Schedule results offer further confirmatory evidence of this. School A is high in the need for intraception, one of the variables distinguishing an extremely ideistic from an extremely pragmatic school.

Looking at medical schools in this frame of reference, let us speculate on the kinds of problems most apt to be encountered in the two extreme types of schools. In an extremely ideistic school a number of students will have chosen medicine as a career, not because of their interests, needs, aptitudes, or personality, but because of the limitations imposed on them by their culture and their families. In many cases they will be following their fathers' professions. Merton, Reader, and Kendall found that students with doctors in their families had made the choice of medicine as a career much earlier than other students and were much less likely to change.[15] For them, medicine represents a responsive career.

This brings up the question of interests: What is the effect of a career choice based on cultural factors rather than on interests or personality needs? McArthur, in the studies referred to above, examined this problem in college students. Fourteen years after college, people of upper social class (preparatory school) backgrounds reported significantly more discontentment and strain in their jobs than did those from lower social classes. Examination of their Strong Vocational Interest Blanks, which they had filled out 14 years before when in college, revealed that measured interests and career choices of upper class students did not correspond as frequently as they did in students from other social classes. Students with discongruities between cultural factors related to career choice and their measured interests are more apt to be a problem in an extremely ideistic school.

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[14] September 17, 1955.

[15] Merton, R. K., Reader, G. G. and Kendall, P. L. *The Student Physician* (Cambridge, Mass.: Harvard University Press, 1957).

TABLE 2.1

DESCRIPTION OF STUDENT FEELINGS ABOUT A CAREER IN MEDICINE
(Special student group)

Comment on medical career	% of students
It's the only career that could really satisfy me	61
It's one of several careers which I could find about equally satisfying	35
It's not the most satisfying career I can think of, everything considered	4
Total N	(1322)

TABLE 2.2

STUDENT OPINION ON INFLUENCE OF M.D. FATHER'S DESIRE FOR SON TO BE A PHYSICIAN
(Special student group)

Comment on father's desire	% of students
I very probably would have chosen some other career than medicine except that that would have disappointed my father	2
I might have chosen some other career if my father had not wanted me to enter the medical profession	6
I wanted to be a doctor and my father's feelings on the matter erased any doubt in my mind	28
My father's feelings had no bearing whatsoever on my decision	25
Do not know	4
No response	35
Total N with M.D. fathers	(187)

The seeds of this problem can be inferred from some of the data collected for this Institute. Table 2.1 shows that 35 per cent of the special student respondent group feel that medicine is only one of several careers they could find about equally satisfying, and 4 per cent feel that medicine is not the most satisfying career they can think of, everything considered. If we just consider the questionnaire responses of those students whose fathers are physicians, we find that 2 per cent would probably have been in another field except for their fathers, 6 per cent might have selected another career execpt for their fathers, and 28 per cent feel they wanted to be a doctor and their fathers' feelings erased any doubts in their minds (Table 2.2).

In an extremely pragmatic school, some students of all types will be found, but the majority of students, closely reflecting the society from which they are drawn, will be strongly oriented toward social mobility and will consequently possess relatively high economic and social prestige values. There is apt to be much less interest in intellectual matters for their own sake and in literature and art. The problems of the highly mobile student may be summed up in Kennan's words, "Change should never be so rapid that the father's experiences are irrelevant to the problems of the son."[16] In the pragmatic type of school, this is true for the majority of the students. Expecting them to change their values too much may pose a severe threat to their equilibrium, resulting in their leaving school, failing to change at all, or developing psychological symptoms. Creating opportunities for close personal contact with faculty members with whom students can identify is worthy of consideration in seeking methods for facilitating change in these students. In this way they may be aided in acquiring new values.

The problems of both extremely ideistic and extremely pragmatic students are challenges to medical education. Some might say immediately that these are challenges for the admissions committees. However, even if the admissions committees could identify the particular student with his particular problem, they have no means of assessing which students will change in a desirable direction as they develop and which will be incapable of making such changes. It would be

[16] Kennan, G. F. *Realities of American Foreign Policy* (Princeton, N.J.: Princeton University Press, 1954).

important in all schools, but particularly in ideistic schools, to develop techniques for helping students with interests in other fields either to leave medical school and go into the appropriate field or, much more to the point, find that particular specialty in medicine that will correspond with their interests, personalities, and needs. Medicine offers such a great variety of career possibilities that almost everyone can derive satisfaction from it, if he but find his proper field.

It would be important in all schools, but most important in extremely pragmatic schools, to develop the students' interest in less practical matters and to broaden their interests in the liberal arts. These students need insight into the meaning of marked social mobility so that economic matters do not become paramount. It is a misconception that education cannot be as exciting an adventure in schools with predominately pragmatically oriented students as in those with ideistic students. However, the challenge is greater because medical school faculties, regardless of the predominant characteristics of students in their particular schools, are probably much more like each other and much more ideistically oriented than practitioners. Dr. Stern's studies carried out at one school suggest that there are over-all personality characteristics of teachers which distinguish them from students and practitioners. In ideistic schools, many student physicians are planning carers in research and teaching; in pragmatic schools, careers as practitioners. Thus, it is more likely that the student body at the former type of school is much more like its faculty than the student body at the latter type of school. If this is generally true, then the more pragmatic the student body the more difficult will be the problem of communication between students and faculty.

Students who step out into practice (particularly general practice) will need an educational background that enables them to absorb new advances in their continual self-education much more than will students who become doctors in large medical centers. They will be much more on their own. Perhaps the question discussed in Chapter 3 and the chapters in Part IV—whether or not to introduce liberal arts into the medical curriculum—is dependent upon the predominance of the type of student within a school.

Questions for consideration

The foregoing leads to the consideration of a topic of great importance for medical education. Should each medical school try to produce all types of doctors, or should each school try to fulfill a specific mission? For example, should some schools seek to produce practitioners and others researchers and teachers? Should free transfer of students between schools be allowed when a student is not in the school best suited for his educational needs and objectives?

Despite these broad generalizations of differences between schools, which are based on the predominance of students with certain personality characteristics in different schools, it should be emphasized again that all types of students are attending all types of schools. Theoretically, and there are many who will disagree with this, all medical schools should enable all types of students to achieve their educational aims. However, this does not always work out in practice. It is well known that students who do poorly in one undergraduate college unsuited to

their needs, interests, and educational aims, often do well in a different type of school.[17] The medical schools have never really faced the problem of the student in a school that does not satisfy his educational aims or offer him the maximum opportunity for reaching them. Should a man who at the end of his sophomore year is primarily interested in a research career in neurophysiology remain in a school whose prime goal is the production of general or even specialized practitioners? Or conversely, should a man primarily interested in general practice continue in a school highly oriented toward academic medicine? What of the student whose values and personality needs are not consonant with those of the great majority in the school? Should free transfer of students between schools be allowed, or should the school re-evaluate itself in relationship to the individual students and try to give each man the type of education he seeks? Are medical schools flexible enough and financially solvent enough to do this? Only awareness of the problem and research into it will supply answers. The data we have presented here and in Chapter 1 can merely serve to clarify the problem.

THE PSYCHOSOCIAL DEVELOPMENT OF MEDICAL STUDENTS IN A CHANGING SOCIETY

Our understanding of the problems we have raised will be very limited unless we also consider three background factors of extreme importance in the ecology of the medical student: one is the psychosocial development of students at this time of life, another is the effect of medical education on the students' development, and the third is the complex of rapidly ongoing changes in our society as they affect students at the present time. Special reference will be made to the contribution of these changes to widening and deepening the chasm between generations, as represented by students and faculties.[18]

Developmental stages

First, a word about the psychosocial development of the medical student. Although the seeds for his development are planted long before he comes to medical school, too little attention is paid to the crucial factors in the medical school experience as they contribute to the attributes of the "good" physician. Since the extremely important developmental stages of infancy, childhood, and

[17] Farnsworth, Funkenstein, and Wedge, *op. cit.*

[18] Much of the material in this section was drawn from the *Report* of the proceedings of the First International Conference on Student Mental Health, which met at Princeton, New Jersey, from September 5 to 15, 1956, under the sponsorship of the World Federation for Mental Health and The International Association of Universities. This meeting was made possible by grants from the Field Foundation and the Grant Foundation. Dr. Funkenstein is editor of the *Report* and wishes to extend his appreciation to these organizations for the use of this material. The implications and interpretations of this material as it applies to medical education are solely those of the author, and he takes complete responsibility for them. It is inevitable in writing up such a report that he may have unintentionally not ascribed some of the material directly to the participant who voiced a particular idea. This is unavoidable when one has discussed a topic with so many.

early adolescence are already behind the medical student, there is a tendency to forget that personality development is a lifelong dynamic process. It is still in its very crucial stages during the medical school period, and a student's solutions to the conflicts of this period are of great importance in determining the type of doctor he will become.

It is not appropriate here to give a detailed discussion of the psychosocial stages of development through which medical students pass at this time of life, but a few comments are in order. There are many frames of reference in which this development may be seen, but in the author's opinion Erikson's stages of the development of an individual and White's growth trends give the clearest theoretical frames of reference.[19]

Erikson states that from birth onward throughout life man goes through a sequence of psychosocial developmental stages which parallel psychosexual development; in psychoanalytic terms, the development of the ego. Each individual goes through a series of crises in development as he solves the appropriate conflicts for each age level. In normal development they occur in a sequential pattern. As long as the conflicts for that particular level are not solved, a crisis exists. Each stage is approached in sequence and its conflicts are difficult to solve if reasonably adequate solutions were not reached in previous stages. This is not to imply that the origins of these developmental conflicts are recent; their roots go way back to early childhood, but the problem of solving the conflicts incidental to them becomes paramount at a particular time of life. It should be realized that individuals, including medical students, do not develop by any time table, for all stages of development are seen in different individuals at different chronological ages. Individual students vary markedly in the time at which they solve these developmental problems, and in the duration and difficulty of the solution process. Until a developmental crisis is solved, the student is not ready to solve the next one adequately. What we are describing here are the over-all patterns most frequently seen at this time of life.

In considering the development of medical students, we will describe three stages of development which Erikson considers of crucial importance at this time of life. They span the college and medical school experience. The premedical and medical student deals with the following sequential stages of development: The first is the establishment of an identity as a person, then as a physician, then as a specialist or generalist. Satisfactory solution of this developmental problem brings with it a "sense of identity"; failure to solve the problem brings about symptoms of "role diffusion." Erikson terms this phase *identity versus identity diffusion.*

The next developmental level is the ability to form mature intimate relationship with others: with members of the opposite sex, resulting in readiness for marriage; with the same sex, seen in the ability to form rewarding relationships with one's classmates, one's future medical colleagues, and yet at the same time to be in intense competition with them; with patients, developing relationships characterized neither by overidentification with them, and consequent lessening

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[19] Erikson, E. H. *Childhood and Society* (New York: W. W. Norton & Co., 1950); also his paper "Growth and Crisis of the Healthy Personality," in *Symposium on the Healthy Personality* (New York: Josiah Macy, Jr. Foundation, 1950). White, R. W. *Lives in Progress* (New York: The Dryden Press, 1952).

of objectivity, nor by stereotyped relationships based on the student's own personality needs rather than those of the patients. So long as the medical student does not have a sense of identity as a doctor, he will be unable to form mature relationships with patients. Erikson has called this stage *intimacy versus isolation.*

Satisfactory solution of the next stage of development results in the ability to take responsibility for the oncoming generation. This is directly expressed in readiness for having children; in medicine it means taking responsibility for patients and for teaching the oncoming generation of students. Erikson's term for this phase is *generativity versus self-absorption.*

If education is to underline development, to quote Freud, then a knowledge of the dynamics of personality development at this stage of life is essential in planning education programs. As stated by Erikson, "College education is probably the greatest organized artificial postponement of adulthood, emotionally speaking, that could be imagined. There were always periods of apprenticeships, in any cultural system, which would lead at a reasonable date to the individual entering the life of his people as a worker, earner and homemaker, and thus emancipating himself from his parents' home. College education is one among many of these long apprenticeships of our time, which are getting longer and more specialized and constitute a most radical postponement of some emotional satisfactions and a replacement of them by others. It fosters a particular form of extended childishness, even as it cultivates certain forms of one-sided precocity."[20]

Length of medical education

If college education interferes with the normal course of development, how much more true is this of medical education? With the increase in knowledge and the resulting technological development of medicine necessitating more specialization, medical education becomes longer and longer. Securing technical competence is certainly necessary, but it must be realized that this process by its very length is unduly retarding the student from reaching the adult stage of development. Keeping students in this artificial adolescence too long produces great stress and strain in them, often with the development of anxiety and dependency of sufficient degree to interfere with learning and the eventual attainment of maturity. We may say that there is a fundamental disharmony between the needs of medical education and the developmental needs of students. If a medical school attempts to teach the more technological aspects of medicine, rather than develop the capacities of its students, it sets an almost impossible task for itself. The sheer weight of skills and the rapidity of technical changes are beyond the capacity of any one individual.

In view of this situation, how will the schools produce mature students? The problem is much too complex to be viewed only from the vista of the students' development in relation to the needs for long training. It must also be considered in relation to several other factors. One is the relationship of age to creativity in medicine.

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[20] Erikson, E. H. "Late Adolescence" in *Report of First International Conference on Student Mental Health* (World Federation for Mental Health and The International Association of Universities, in preparation).

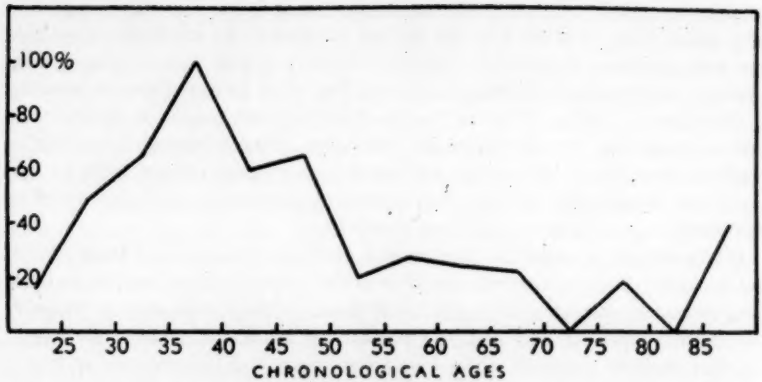

FIG. 2.—Average number of medical discoveries and inventions per five-year age interval for a group of 159 individuals making 188 medical discoveries and inventions. (Reproduced from *Age and Achievement* by Harvey C. Lehman by permission of the publishers, Princeton University Press; copyright 1953 by the American Philosophical Society.)

Age and creativity

In a very interesting book, Lehman[21] collected statistics on the relationship between chronological age and creativity. Figure 2 shows the relationship between the age of the investigator and major discoveries and inventions in medicine. Is the length of medical education now such that we are losing some of the creative years of many individuals by keeping them too long at an educational status? Will increasing the education and specialized training of the investigator compensate for his research inactivity at the early age at which he is ready to begin making contributions? Other data of Lehman's cast some light on this problem. Figure 3 shows that in earlier times, the creativity of men did not decline as rapidly as it has in more modern times. It is possible that creative years are being decreased at both ends of the spectrum. Still another problem is the late age at which leadership positions are obtained at the present time compared with formerly. This whole situation is too complex for discussion here. A stimulating discussion of the possible explanations of the findings and the many provocative issues raised by them will be found in Lehman's book.

Changes in mode of living

Another factor which must be considered in relation to medicine's long educational process is the set of recent changes in the students' mode of living—changes associated with the rapid changes in our society. As pointed out by Margaret Mead, students everywhere are taking steps to ameliorate the perpetual adolescent state in which they are kept.[22] Increasingly medical students

[21] Lehman, H. C. *Age and Achievement* (Princeton, N.J.: Princeton University Press, 1953).

[22] Mead, M. "Cultural Change and the Student" in *Report of First International Conference on Student Mental Health* (World Federation for Mental Health and The International Association of Universities, in preparation).

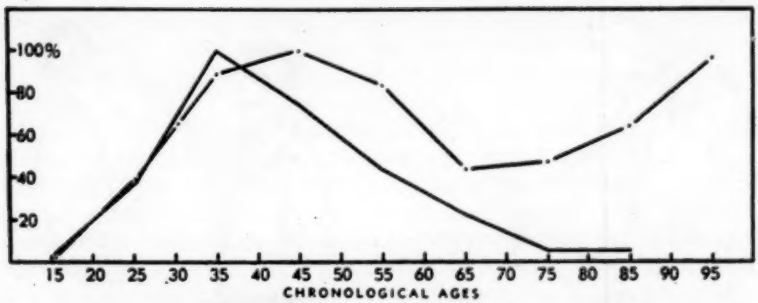

FIG. 3.—The relationship between age and productivity in medicine and public hygiene. The broken line is based on 321 contributions made by 215 individuals born prior to 1749. The solid line is more recent, representing average productivity per age interval of individuals born from 1750 to 1850: 407 contributions by 275 individuals. (Reproduced from *Age and Achievement* by Harvey C. Lehman by permission of the publishers, Princeton University Press; copyright 1953 by the American Philosophical Society.)

are marrying at an earlier and earlier age; Table 2.3 shows that 40 per cent are married and 9 per cent engaged. With marriage, however, a number of problems are raised. First and paramount is the necessity for support of a family, for half of the married students have at least one child (Table 2.4). In addition, the entire relationship between the sexes is altered. In many cases, the husband washes dishes, cooks, and often does the housework. In most cases, until the advent of a child, the working wife contributes the largest share to the support of the couple. At Harvard Medical School last year, the wives contributed more to the support of the students than did their parents.

The increasing load of guilt the student feels as the result of his wife's financial support, drives him to work at an increasing pace, as does the birth of a child. As a concomitant to this, there is a great increase in vocationalistic attitudes on the part of the working student. Under the stress and strain of supporting a family by doing part-time work for a living that is not rewarding other than financially, the student is in a hurry to finish his education. More and more the pragmatic and expedient take precedence over the theoretical and ideistic. The teacher becomes someone with different ideas, representing an entirely different

TABLE 2.3

MARITAL STATUS OF MEDICAL STUDENTS
(Regular student group)

Marital status	% of students
Single	50
Engaged	9
Married	40
Divorced, separated, or widowed	*
No response	*
Total N	(1391)

* Less than .5 per cent.

TABLE 2.4

MEDICAL STUDENTS WITH CHILDREN
(Regular student group)

Number of children	% of students
None	47
One	29
Two	14
Three	6
Four or more	1
No response	3
Total N married, widowed, and divorced	(565)

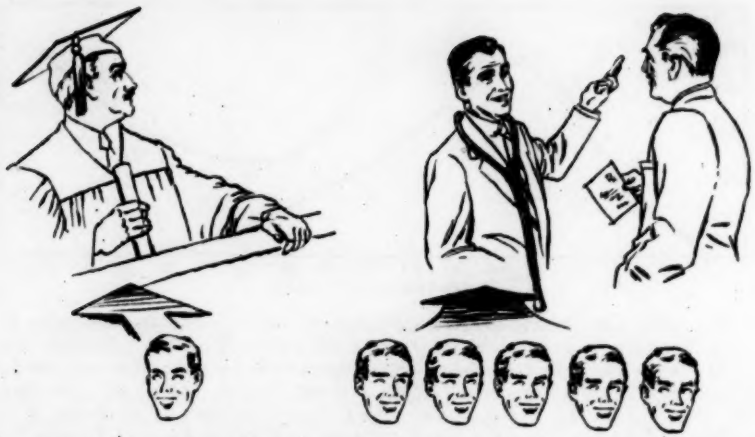

FIG. 4.—The great majority of medical students are oriented toward medical careers in general or specialty practice rather than in academic medicine.

goal from that the student envisions for himself, and is no longer someone with whom he can identify. This contributes to the disappearance of many values from education that are of great importance, which we have termed ideistic.[23]

The faculty-student chasm

Mead further points out that in too many instances the entire picture is complicated by the stereotypes many faculty members have about medical students and other students—stereotypes that have long outlived their validity. Many assume that the students they are teaching are remarkably like themselves at the same age. The expectations they hold for students fit this model, and in many cases the curriculum and the entire structure of medical schools are in line with this outdated concept of the student. Formerly students were not supposed to marry. Until recently some hospitals would not take married interns, and if marriage occurred while the student was an intern he had to leave. Medical students were expected to live in dormitories, be dependent on their parents, forego all financial gains until some future date, and spend their spare time in studying and research rather than in working to earn a living. Today students, interns, and residents are doing otherwise.

The pressing problems of the married interns and residents were continually alluded to in the Institute group discussions. It was reported that some residents are leaving their residency for practice before being fully trained; others are actively practicing medicine in the evening; others have menial positions after hours. In many cases the financial plight of the young resident's family has re-

[23] This dilemma in which the student finds himself also results in an increased interest in financial matters, as described by E. Lowell Kelly at the Institute last year (see Gee and Cowles, *op. cit.*, pp. 185–96). This entire picture is graphically described by L. S. Paul in "How Much It Costs to Educate a Doctor," *Harpers Magazine*, October 1957, pp. 74–95.

sulted in extremely strained relationships between him and his wife, with deleterious effects on their children. It was the feeling of many Institute participants that the hospitals would have to compensate these men adequately for their services.

Although many in medical education are fully aware of the problems facing the student physician, there are others who don't realize their existence. In an artcile that appeared in 1957 on the financial problems encountered in going through psychiatric training, it was reported that three out of four third-year psychiatric residents in certain regions had private patients in the evening.[24] When the findings in this article were pointed out by us to a professor of medicine, he stated that this was not true for medical residents. But upon investigating he found out that three out of four of his own third-year medical residents were seeing private patients in the evenings.

Such striking differences between viewpoints of the students on one hand and of the faculty on the other are in one sense reflections of the vast differences in values and objectives between the physicians on a medical faculty and physicians in the community. The majority of students reflect the viewpoint of the society from which they are drawn, a similar view to that of practitioners in general. As reported by Dr. Stern in the preceding chapter, medical faculty members at his school are quite different from the students and the practicing physicians even in their basic psychological needs. We know also that the values and objectives of the faculty often actually run counter to those of the practitioner. This polarity is desirable, as many if not all would agree that the task of a university is to lead rather than merely to reflect current views. The relationship among students, faculty members, and practitioners as reported by Dr. Stern is portrayed graphically in Figure 4.

Many tensions are produced by these differences in the viewpoints of medical faculties and practitioners, and some difficulties are encountered in reconciling their viewpoints. Among many cases in point are pressures from specialty boards and from general practitioner associations seeking to impose their own preferred patterns of education on the schools. This brings up a number of interesting questions: Should the medical faculty seek to produce students in their own images? Or should they be more responsive to outside pressure to produce stu-

TABLE 2.5

STUDENT CAREER PLANS ACCORDING TO CLASS IN MEDICAL SCHOOL
(Special student group; multiple response)

Plan to go into	% of students in each class				
	First year	Second year	Third year	Fourth year	Total %
General practice	46	42	31	31	38
Specialty practice	46	48	60	62	54
Research and/or teaching	4	5	6	3	5
Other	1	2	1	1	1
Undecided and no response	2	1	0	0	*
Total N	(349)	(332)	(321)	(320)	(1322)

* Less than 1 per cent response.

[24] Potter, H. W., Klein, H. R. and Goodenough, D. R. "Problems Related to the Personal Costs of Psychiatric and Psychoanalytic Training," *Amer. J. Psychiat.* 115, 1957, p. 1013.

dents more in the images of practitioners? There is great need for practitioners. There is also great need for medical teachers and researchers, and it is interesting in this connection to note that in the pre-Institute research only 5 per cent of the students plan to enter this work (Table 2.5). Perhaps medical schools should not try to produce students in their own image of a man in academic medicine or in the image of the present-day practitioners; rather they should provide the educational opportunities that enable students to develop their capacities so they may more truly choose their own future course. The ideal image of the new physician will be quite different from that of the present-day physician and that of the present-day faculty member. To quote John Stuart Mill, if we "make them capable and sensible men, they will make themselves capable and sensible physicians."[25]

Some approaches to the problems

The rapidly ongoing changes in our society are having their effect on the psychosocial development of medical students. In considering the problems created thereby, it must be borne in mind continually that medical education has become so lengthy that it is out of step with the student's development, and students, unwilling to postpone the satisfactions of adulthood until their thirties, are marrying and having children. Concomitantly, the students develop an increased preoccupation with vocationalism and the necessity for earning a living, concerns that do not leave time for the cultivation of certain areas of importance in education. The situation is further complicated by the fact that many medical school faculties are lagging behind these social changes under the influence of their outdated stereotype of the student.

What are the medical schools doing to solve the host of problems arising from these factors? Fortunately, at the present time they are not standing by, as the new programs at Florida, Harvard, Johns Hopkins, Northwestern, Vermont, Western Reserve, and other schools attest. (See Part IV, "Educational Patterns for Medicine.") A number of possibilities in approaching the problems can be suggested here. One is to shorten the time for medical education, either by actually telescoping the entire educational experience or by increasing the number of electives so that students who make an early specialty choice can spend more time in medical school in their chosen fields. This should decrease the time spent after graduation in residency training.

Another possible approach is not to change the length of medical education but to do something about the conditions under which the students live, the manner in which they are taught, and the other aspects of the medical school environment —factors discussed in Part II of this book. Some suggestions for improving living conditions would be: adequate living quarters for married students, along with scholarships and loan funds large enough to make marriage and a family possible; jobs in medical schools and hospitals in which the student works on research or clinic projects, thus forwarding his education at the same time as he earns; payment by hospitals of salaries commensurate with the needs and education of in-

[25] J. S. Mill, as quoted by A. W. Griswold in *Essays on Education* (New Haven, Conn.: Yale University Press, 1954).

terns and residents. The price for failure to facilitate in every way the mature development of the doctor is paid in the quality of patient care.

As for the financial aspects of the medical students' education, it is suggested that these problems be studied, not only from the standpoint of economics and need, but also from the standpoint of the effect of various plans of financial aid on the students' development. For example, what is the effect of loans in contrast to scholarships on the development of autonomy? Then, too, the students' financial problems must certainly be considered in relationship to those of faculty members, interns, and residents, so that a balance between all these groups can be achieved.

Taking care of the financial needs of students is but one aspect of the current dilemma and is not apt to be enough. Students must also be treated as responsible adults by administrators and teachers (see Chapter 3). Techniques must be developed to give students increasing responsibility commensurate with their stage of development. Too many medical students report that "medical school is just like high school all over again."

CHANGES IN STUDENTS DURING MEDICAL SCHOOL

The issues discussed in preceding sections of this chapter prompt one to ask: what are the effects of medical education on this diverse group of students? Alan Gregg summarized the effect of the medical school experience as follows:[26]

> Though not intentionally exerted, the pressures of expectation and example tend to convert the student into a stereotype. By the end of the fourth year, medical students resemble each other in manner, thought and behavior much more closely than in their first year. The pace of their work, the gravity of what they witness, admiration of some local figure turning into imitation, the crescendo of their concern about their professional careers, all increase the comfort and reassurance of losing their individual differences in conforming to a stereotype. The spontaneity, the naturalness, the self-reliance, and simplicity and homely originality of character that patients so rightly value in a doctor may or may not emerge from the eclipse. It is, I think, a close call for most medical students and young doctors; they all but prefer the protective stereotype.

In the words of one graduating medical student, the situation can be summarized this way:[27]

> My point is this, whatever *was* individual in us when we arrived here has (except in a few restless spirits) largely disappeared in the course of four years. Partly it is due to our withdrawal. Partly it is due to a program of medical academia which allows very little reinforcement of such intangibles as sentiments and feelings. So all right, our induseum *was* a little griseum, but that didn't mean our sulci had to be scrubbed.

Cynicism and anxiety

In this regard, Dr. Leonard D. Eron's findings are of especial interest (see Chapter 1, Section D). He finds that medical students, in contrast to law students and nursing students, show greater cynicism as seniors than as freshmen.[28]

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[26] Gregg, A. *op. cit.*

[27] Brunsting, C. "A Class of Nobodies," *Harvard Medical Alumni Bulletin* 31, 1957, p. 34.

[28] Cynicism as measured, along with Manifest Anxiety and Humanitarianism, by the scales referred to in Chapter 1, Section D.

Some would interpret these findings as the normal course of development of medical students and claim it is desirable that students have such attitudes in order to handle the extremely traumatic effects of coming at firsthand terms with death and suffering.

However, other results of Dr. Eron's research put an entirely different perspective on this. Medical students, unlike law students, do not show a lowering of Anxiety scores during medical school. In the case of medical students, the more highly anxious show high Cynicism scores and the less anxious medical students show low Cynicism scores, a relationship between cynicism and anxiety that does not obtain in law students. Dr. Eron interprets this as indicating that cynicism is an *inadequate defense* against anxiety. It is my own observation that freshman medical students will speak of "Mr. John Doe, the kindly, frightened gentleman with a coronary thrombosis who has difficulties in supporting his family now that he has become ill," while the senior speaks of "the coronary in Bed 3." One junior student told me after a patient of his died, "I'm never going to get close to another patient. In that way I can't get hurt."

It is almost impossible to get adequate statistics on the number of medical students seeking psychiatric help for personal problems, because frequently they seek a psychiatrist outside of the health service (see Table 4.35, Chapter 4). There is, however, other evidence that the incidence of psychiatric difficulties and problems are high in medical students.[29] On my own visits to universities, one of the most frequent questions asked me is why more medical students seek psychiatric help than other students.

The teaching of psychiatry to students may play a part in making consultation with a psychiatrist more respectable. Then, too, the study of psychiatry often arouses anxiety in students who already have emotional problems. This is not the whole story, however. Is it not highly possible that medical education contributes greatly to students' difficulties and even fosters cynicism as a defense against anxiety? Is this a desirable effect? Is this the type of uniformity we wish to produce? This is a matter of grave concern to medical schools. Our knowledge of human psychology points to the long-term deleterious effects of unresolved anxiety on personality development. If, to quote Alan Gregg again, we are trying to produce "doctors controlled by compassion and public spirit, qualities nearer the heart than the mind or the purse," is not research into the sources of students' undue anxieties one of the first responsibilities of medical education today?

The favorable environment

Using Erikson's schema for the psychosocial development of man, it is possible to ask many pertinent questions about a medical school's effect on its students and the possible sources of their anxieties. What factors in a medical school promote *trust* rather than *mistrust* between faculties and students? How foster

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[29] Brosin, H. H. "Psychiatric Experiments with Selection," *Soc. Sci. Rev.* 4, 1948, p. 461; Eron, L. D. "Effect of Medical Education on Medical Students' Attitudes," *J. Med. Educ.* 30, 1955, p. 559; Kohl, R. N. "The Psychiatrist as an Adviser and Therapist for Medical Students," *Amer. J. Psychiat.* 108, 1951, p. 198; Whyler, C. I. "Neurotic Problems in a Student Practice," *J. Lancet* 65, 1945, p. 104.

autonomy, *initiative*, and healthy competition? How help the student develop *industry* of the type that results in habits of continual self-education—a recognized objective of medical education? How does one help students to establish their sense of *identity* as a person, as a physician, as a specialist or generalist? What can be done to facilitate the students' acquisition of the ability to make mature relationships with others of the opposite sex and of the same sex? How does one teach students to take mature *responsibility* toward patients?

Satisfactory rapport between faculty and students, so necessary to create an optimum learning situation, is promoted when there is an awareness and understanding by both groups of differences in their values and educational objectives; student *autonomy* and *initiative* are fostered when there is little supervision of students and a minimum of tests, examinations, rigid rules of conduct, roll calls, and the like—in other words, when nonauthoritarian permissive methods are used with students who are after all at a graduate level. Continuing habits of self-education are acquired if students' capacities are developed rather than trying to teach practical skills and facts. *Identity* as a physician is much less difficult to establish where there are orientation programs so that students' misconceptions and fantasies about doctors have a chance to be realistically re-evaluated, and where there are opportunities for each student to come in close contact with faculty members who show him what a physician is, how he functions, and how he lives. Making the choice of that career within medicine which will best fulfill a student's potentials, interests, and needs so that he will derive the greatest satisfactions from and make the most contributions to medicine is much more likely when department does not vie with department in attempts to entice students into their specialty. *Responsibility* for patients is developed when students are treated as adults and not kept in an overly dependent status.

TABLE 2.6

METHODS BY WHICH PERFORMANCE EVALUATIONS ARE REPORTED TO MEDICAL STUDENTS

(Participants group; multiple response)

Reporting method	% of schools following method for each year (N = 92)			
	First year	Second year	Third year	Fourth year
Letter grades by subject	47	46	43	42
Numerical grades by subject	21	20	17	20
Class rank by subject	1	1	1	2
Over-all class rank or percentile	21	24	30	27
Percentiles by subject	1	1	2	1
"Pass" vs. "Fail" by subject with no grade	12	13	15	15
"Pass" vs. "Fail" over-all with no grade	7	7	7	5
Descriptive report	2	2	3	2
Other	0	0	0	0
No response	2	4	7	8

Mature rewarding relationships with one's own classmates, who will become one's future medical colleagues, are only possible when student is not pitted against student by an undue emphasis on competition, e.g., such devices as posting lists of class standings at regular intervals. Some facts and opinions were collected as part of the pre-Institute research. Table 2.6 shows that approximately one-fourth of all medical schools report over-all class rank or percentiles to all the students. Table 2.7 shows that 31 per cent of students feel there is a great deal of competitiveness among medical students, 45 per cent feel there is a fair amount, 22 per cent a little, and 2 per cent none. In contrast, Table 2.7 also

TABLE 2.7

STUDENT AND FACULTY OPINION ON AMOUNT OF COMPETITIVENESS AMONG MEDICAL STUDENTS

(Special student and faculty groups)

Group	% of each group citing degree of competitiveness					
	Great deal	Fair amount	Only a little	None	No response	N
Medical students	31	45	22	2	*	(1322)
Five faculty groups (average)	13	53	27	2	5	(1818)†
Basic science, instructor and above	21	51	19	1	8	(468)
Basic science, below instructor	27	44	15	2	11	(106)
Clinical, full-time, instructor and above	10	53	30	3	4	(652)
Clinical, part-time, instructor and above	8	57	28	2	4	(339)
Clinical, below instructor	9	51	34	3	3	(253)

* Less than .5 per cent.

† The 71 unclassified faculty members are omitted.

shows that only 13 per cent of the faculty feel there is a great deal of competitiveness, 53 per cent a fair amount, 27 per cent a little, and 2 per cent none.

This whole subject of competition is a particularly sensitive area, due to the large number of present-day students who depend on their sensitivity to their peers' feelings about them for evidences of their personal worth, and as guides to their behavior.[30] As a reaction against the difficulties associated with telling the student his grades or class standing, many schools lean too far in the opposite direction, which is contrary to much learning theory. The student, in the absence of grades, has great difficulties in assessing his performance. As pointed out by Dr. Stephen Abrahamson in the general discussion following the Institute, self-evaluation is an important factor in the learning process; for optimal learning the student needs to know at frequent intervals which aspects of his work are satisfactory and which aspects are unsatisfactory. In this way, learning can be facilitated. Instead of giving the student his grades, perhaps frequent conferences with him about the quality of his work and progress would solve this problem.

If questions such as those discussed above are raised in various medical schools, then meaningful changes can be made. At the same time evaluative studies, such as Dr. Eron's, are necessary to ascertain whether or not the effects of the changes are beneficial or harmful. The questions, the changes, and the evaluative studies are all necessary steps in the process of improving the medical school environment.

CONCLUSION

The material presented here and in Chapter 1 can best be summarized by the word "individuality." We emphasized the individuality of medical students and of medical schools. We did not speak of *the* medical student, only of different types of medical students; we did not speak of *the* medical school, only of different types of medical schools. It is not that one student or one school is better than another, but that they are different. In this age of increasing conformity, no task is more important for medicine than to develop the unique characteristics of students and schools. It cannot be reiterated too often that research on the

[30] Riesman, D. *The Lonely Crowd* (New Haven, Conn.: Yale University Press, 1952).

problems of students must always be carried out with the realization that in many instances the results obtained at one school will not be applicable at other schools. The same problem may well require different solutions at different schools.

We did not give you answers to the many problems raised; we tried to ask the questions for which the medical schools must seek the answers. The individual personality and social characteristics of students must be considered in assessing their ability to learn different subjects, in determining the type of teaching most effective for them, and in helping them reach their choice of a career within medicine. A great challenge is offered each school to give to each future doctor an education commensurate with his own needs, characteristics, potentials, and educational aims. Only in this way can the maximum growth of each student be assured and his capacities developed to the fullest.

Each medical school has its unique qualities that distinguish it from all others. For purposes of discussion, these differences were examined in terms of the distribution of students' characteristics within three different types of schools chosen as models. Within all schools there are all kinds of students, but the number of each type of student varies, and it is upon the predominating characteristics that the climate of a school so largely depends. We have raised the question of the student whose values and personality characteristics are extremely deviant, i.e., not syntonic with those of his classmates. Will he be able to fulfill his educational aims within that particular school? Should every school provide educational opportunities commensurate with each student's needs? If unable to do so, should free transfer between schools be allowed?

We have tried also to emphasize the marked differences between the personalities, expectations, and objectives of faculty members in relation to those of medical students and of practitioners. These incongruities between faculty members and students and practitioners lead to great conflicts of interests, but there are other forces at work in this area which compound the difficulties—the vast increases in the technological knowledge of medicine, the multiplying demands on the medical profession by society, and the rather acute needs of present-day students. Probably the greatest tensions of all stem from the rapidly ongoing social changes in our society during the past few decades, changes that mean today's decisions are no sooner made than they are anachronistic. These pressures reach their acme in the medical school, which has the opportunity for determining so largely the future course of the medical profession. Still another contribution to the difficulties of solving the problems inherent in the present situation is the increasing financial plight of medical schools.

At the center and core of all these pressures is the medical student. Too often each group is trying to forward its own aims and appears to act without awareness of the students' individual personalities, rights, potentials, and educational aims. The effect of such divergent forces on students can be seen in many areas, for not only is personality development impeded, but difficult learning situations develop. Much work by social scientists confirms the well-known observations by many educators that marked differences in the expectations, cultural backgrounds, and values among various groups within a school—and between a school and society—are productive of stress and strain and result in undue anxieties and hostilities on the part of many. The degree to which the institution,

as a social system, is able to handle these incongruent forces is a measure of whether or not the climate of the school will be of the type that facilitates or impedes the development of students.

If we wish to accomplish our educational aims and help students accomplish theirs, and at the same time fulfill society's demands on medicine, we must do much more than give voice to abstract ideals in planning programs of medical education for our individual schools. There must be intelligent planning on the basis of knowledge; we need research into personality development in interaction with the medical school environment, i.e., on the ecology of the medical student. Fortunately, with our great diversity of students and schools there are myriad opportunities for different experiments in education from which we can all learn. Playing it by ear, as in the past, is no longer sufficient. With recent progress in the social sciences, tools are rapidly becoming available to study these processes in action, and much knowledge of general principles is already available. Results obtained by such studies do not abrogate old experiences, techniques, values in education, and knowledge gained by experience over the years, but now educational programs can be planned and evaluated on the basis of experimental work. The decisions of the course for a medical school to follow will still be made by faculties and administrators, but on a basis of knowledge rather than intuition.

In *The Behavioral Scientists and Research in the Health Field* this viewpoint is summed up in relation to medical practice.[31] This quotation is equally applicable to medical education.

> This responsibility (of the social scientist) should not be narrowly conceived in terms of "social engineering" but broadly approached with the goal of substituting rational, consciously deliberated structures and functions for the unconsciously formulated practices derived from tradition and maintained by custom. Accepted practices may be "good" or "bad," but only by consciously thinking them through and subjecting them to critical research can the community assume control of our social environment and direct it in the course best calculated to its stated values.

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[31] An excerpt from a questionnaire filled out by a social scientist quoted by Anderson, O. W. and Seacat, M. in *The Behavioral Scientists and Research in the Health Field* (New York: Health Information Foundation, 1957).

PART II

Factors Affecting Medical Students

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Introductory Note to Part II

The foregoing chapters have dealt with the characteristics of medical schools and medical students, with emphasis on the remarkable diversity that exists from school to school and from student to student. Despite this diversity, all medical schools have some objectives in common, and there are some forces operating in every school environment that affect all medical students, albeit in different ways.

Here in Part II the authors explore these curricular and noncurricular factors in the medical school environment and discuss the problems they create and some steps that have been taken toward solving them in order to attain educational objectives.

Chapter 3 presents the ways in which medical faculty members set the school environment, which influences the student's growth both through the curriculum they establish and their treatment of the student as an individual. Dr. Thomas Hale Ham argues for the need to treat the student physician as a member of a graduate professional school. In the second section of this chapter Dr. Stephen Abrahamson, a professional educator, discusses the learning process with particular reference to the learning situation in medicine.

Chapters 4 and 5 concentrate on the noncurricular factors that play such an important role in medical student life. Dr. Hugh Chaplin, Jr., takes up the sources of nonacademic problems and the ways of helping students to meet these problems. This is followed by a close look at student counseling, with two different viewpoints expressed by Dr. Dana L. Farnsworth and Dr. Milton E. Hahn.

CHAPTER 3

Educational Environment as Related to the Development of the Individual Student

A. Treating the Medical Student as a Member of a Graduate Professional School

BY THOMAS HALE HAM

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THE major objective of the medical school is to guide the student in his individual development toward the profession of medicine. This guidance is accomplished by the members of the faculty, who set the educational environment by designing the objectives of the total program of education. Two forces have a profound effect on the student—the way he is treated as an individual and the course of study, or the curriculum, that is required of him.

There is usually agreement on many of the objectives of medical education: that graduates must continue to educate themselves for a lifetime in their careers; that thinking scientifically is essential to all fields of medicine; that medicine requires a knowledge of biological sciences and clinical subjects; that medicine requires an understanding by the physician of himself and of his patient as well as skill in care of the patient; that ethical, moral, and humanitarian standards of performance are essential for the physician; and that the professional roles of the graduates may include general or special fields of medical practice, teaching, research, administration, or other activities.

Obviously these objectives are difficult to attain and require the most careful planning so there may be an effective curriculum and, especially, an environment in which the student learns how to educate himself and continues to mature as a person. The methods of medical education need to be adapted to the student's pace and ability, so that he may be given graded increases in responsibility—for his own education, for knowledge of medicine, and for the care of patients. As with other graduate professional schools, it is necessary for the medical school to balance the emphasis on education against training in the skills of the profession and to balance the emphasis on student participation in the learning process against instruction by the faculty.

Here are some typical questions asked by faculty members as they consider their role in relation to the growth of the student in a school of medicine:

1. How can the student be encouraged to continue to mature as a person, as a student of medicine with individual interests and goals, and as a future member of the medical profession?

2. How can the student be guided so that he will take the initiative for his own education and will take responsibility for his performance as a doctor-in-training? How can freedom and responsibility be balanced to encourage the student's growth?
3. How should the faculty treat the student as a person? Should he be treated as a graduate student in a university? How should he be treated in the hospital?
4. How reliably and by what methods can the student be evaluated for his knowledge, ability to learn, performance, attitudes, personality, character, and potential?
5. How much importance should be given in each year to examinations as compared with other means of evaluating the student? What kinds of examinations should be given and with what frequency?
6. How should the evaluation data be used to help develop able and responsible physicians, i.e., what should the student be told about his performance? Should the student be told his grades, rank, general standing, over-all performance, pass or fail? What should the hospital be told?
7. How do evaluation procedures, honors, and awards affect the individual student, interstudent relations, and student-faculty relations? How can students be encouraged to work together and avoid undesirable forms of competition?

These questions were implicit in all of the Institute discussions of the intramural forces affecting medical students. The questions will be examined in this chapter as they pertain to the desirable educational environment that may result when the student is treated as a member of a graduate professional school.

Data from questionnaires to faculty and students

Some of the findings of the pre-Institute research are submitted as they relate to the need for graduate education in medical schools and to the problems in-

TABLE 3.1

AVERAGE NUMBER OF CREDIT HOURS PER WEEK AVAILABLE FOR ELECTIVE COURSES DURING EACH MEDICAL SCHOOL YEAR

(Participants group)

	Average credit hours per week for electives									
	Tax-supported schools					Private schools				
Year	North East	South	North Central	West	Canada	North East	South	North Central	West	Canada	All schools
First year	.5	5.0	5.8	2.0	0	0.9	4.4	1.8	2.3	5.3	3.4
Second year	1.0	.3	.2	2.7	0	1.5	6.3	1.5	3.7	1.0	1.6
Third year	0	.5	1.9	1.0	0	1.3	6.3	1.1	0	1.7	1.7
Fourth year	1.0	.4	6.7	3.0	0	3.1	.6	9.1	3.0	0	3.1
Total N	(5)	(15)	(15)	(4)	(4)	(19)	(13)	(9)	(3)	(4)	(91)*

* It should be noted that of the total N of 92 schools, 1 school (Puerto Rico) was omitted from some of the analyses.

TABLE 3.2

AVERAGE NUMBER OF FREE PERIODS PER WEEK AVAILABLE DURING EACH MEDICAL SCHOOL YEAR

(Participants group)

	Average free periods per week									
	Tax-supported schools					Private schools				
Year	North East	South	North Central	West	Canada	North East	South	North Central	West	Canada	All schools
First year	2.8	1.5	1.9	4.7	1.0	1.7	1.3	2.7	1.0	2.5	1.9
Second year	3.0	1.2	1.9	4.7	.8	1.9	1.0	2.3	1.3	3.3	1.9
Third year	.2	.3	1.0	.7	.5	.6	.4	.6	.7	1.3	.6
Fourth year	.2	.5	1.7	1.0	1.0	.6	.3	.8	1.0	1.3	.8
Total N	(5)	(15)	(15)	(4)	(4)	(19)	(13)	(9)	(3)	(4)	(91)

TABLE 3.3

DEPARTMENT HEAD OPINION ON FREE TIME DURING PRECLINICAL AND CLINICAL YEARS

(Department head group)

Department	% of department heads citing opinion on free time: During preclinical years: Should be scheduled several times per week	Would be waste of time	No opinion	No response	During clinical years: Should be weekly in blocks of 3–4 hours	Should be in blocks of weeks or months	Would be waste of time	No response	N in each department
Anatomy	71	13	8	8	51	13	6	30	(90)
Biochemistry	65	14	11	10	38	20	8	33	(84)
Medicine	64	19	11	6	46	38	14	2	(90)
Microbiology	60	19	13	7	48	20	8	23	(83)
Obstetrics and Gynecology	46	19	32	4	41	30	25	4	(79)
Pathology	54	19	19	8	49	28	11	11	(80)
Pediatrics	53	19	22	5	51	31	14	4	(77)
Pharmacology	76	10	11	3	46	32	10	12	(72)
Physiology, Biophysics	75	10	5	10	53	24	5	19	(80)
Psychiatry	60	19	18	3	59	25	9	7	(68)
Public Health, Preventive Medicine	72	10	15	3	52	38	7	3	(61)
Radiology	32	37	29	2	44	22	31	3	(59)
Surgery	43	30	19	8	36	31	25	7	(107)
Urology	21	53	11	16	26	21	42	11	(19)
Neurology	41	23	27	9	30	23	14	14	(22)
Ophthalmology	19	44	22	16	39	13	13	16	(32)
Anesthesiology	36	11	43	11	57	21	14	7	(28)
Otolaryngology	18	29	50	3	43	11	43	3	(28)
Dermatology	36	32	32	0	50	18	23	9	(22)
Other	44	31	16	9	50	16	25	9	(32)
Average	*55*	*20*	*18*	*7*	*47*	*26*	*15*	*12*	*(1222)**

* Of the total N of 1232 department heads, 10 were unclassified.

volved. For example, the availability of free time, the policy on individual research, and the state of faculty-student relations may be limiting factors in encouraging student growth in initiative, responsibility, and maturity (note questions 1–3 above).

It was found that elective courses are offered in most medical schools (Table 3.1), and that free time is available for students, particularly in the first two years (Table 3.2). More than half of the department heads favor regularly scheduled free time in all four years (Table 3.3); 46 per cent of students report

TABLE 3.4

STUDENT COMMENT ON AVAILABILITY OF SCHEDULED FREE PERIODS DURING THE SCHOOL WEEK

(Regular student group)

Class	% of students citing free time availability: Available	Not available	No response	N in each class
First year	60	39	1	(394)
Second year	57	40	3	(354)
Third year	31	67	2	(324)
Fourth year	32	67	1	(316)
All students	46	52	2	(1388)*

* Of the total N of 1391 students, 3 were not classified.

TABLE 3.5

STUDENT UTILIZATION OF FREE TIME DURING EACH MEDICAL SCHOOL YEAR

(Regular student group)

Item	Average student ratings* of free time allocation							
	First year		Second year		Third year		Fourth year	
	Ratings	N answering	Ratings	N answering	Ratings	N answering	Ratings	N answering
Regular studies	1.5	(234)	1.6	(214)	1.6	(121)	1.8	(118)
Research	2.8	(186)	2.8	(170)	2.8	(93)	2.7	(95)
Elective studies	2.6	(195)	2.5	(171)	2.2	(105)	2.1	(115)
Gainful employment	2.8	(181)	2.6	(172)	2.7	(99)	2.4	(107)
Recreation	2.0	(229)	2.1	(207)	2.1	(123)	2.1	(116)
Other	2.2	(27)	2.1	(37)	1.8	(23)	1.6	(15)

* Figure reported is the mean of ratings assigned by the students: 1 = considerable amount, 2 = moderate amount, and 3 = little or none.

that scheduled free time is already available (Table 3.4), and 52 per cent report that it is not. Most of the available free time is utilized in studying regular medical course work and only a moderate amount of time is devoted to research in any of the four years (Table 3.5).

A few medical schools have introduced elective or required research projects and a project-thesis, or have required a thesis based on a subject studied in depth (Tables 3.6 and 3.7). Student research in vacation periods is increasing in many schools. Research programs, when available, can bring prolonged contact between the M.D. student and a faculty member. Student opinion of the interest shown by different faculty groups is shown in Table 3.8.

TABLE 3.6

PROJECTS REQUIRED FOR THE M.D. DEGREE

(Participants group)

Project required	% of school
Thesis	11
Research and/or library project	25
No project required	61
No response	3
Total N	(92)

TABLE 3.7

DEPARTMENTAL REQUIREMENTS ON STUDENT RESEARCH OR LIBRARY PROJECTS

(Department head group)

Student projects are	% of dept. heads	
	Basic science	Clinical
Elective	43	64
Required	33	18
No response	23	18
Total N	(409)	(813)

TABLE 3.8

AMOUNT OF INTEREST IN MEDICAL STUDENTS SHOWN BY DIFFERENT FACULTY GROUPS

(Special student group)

Faculty group	Average student ratings* of interest shown by faculty groups									
	First year		Second year		Third year		Fourth year		All students	
	Rating	% no response	Rating	% no response	Rating	% no response	Rating	% no response	Rating	% no response
Residents	3.5	19	2.9	4	2.2	0	2.2	0	2.6	6
Basic science faculty	1.6	1	1.6	1	1.7	†	1.8	†	1.7	1
Full time clinical faculty	3.3	20	2.2	5	1.7	†	1.7	0	2.2	7
Practitioners who teach part time	3.2	19	2.7	7	2.4	7	2.4	5	2.7	10
Total N	(349)		(332)		(321)		(320)		(1322)	

* Figure reported is the mean of ratings; 1 = a great deal and 3 = only a little.
† Less than .5 per cent.

TABLE 3.9

STUDENT OPINION ON AMOUNT OF DIRECTION GIVEN BY THE MEDICAL FACULTY

(Special student group)

Opinion on directing emphasis for study	% of students
Too little direction	39
About the right amount	57
More than enough direction	4
No response	1
Total N	(1322)

TABLE 3.10

DEPARTMENTAL POLICY IN REGARD TO CLASS ATTENDANCE

(Department head group)

Class attendance is	% of dept. heads	
	Basic science	Clinical
Required	53	59
Recorded	15	19
Neither required nor recorded	28	16
No response	4	6
Total N	(409)	(813)

About 60 per cent of students reported that they had adequate direction regarding the material that was to be emphasized in their study (Table 3.9), but almost 40 per cent felt they did not. Attendance is required in class and clinical exercises in more than half of the medical schools (Table 3.10), but there is no information available on the effect of compulsory attendance on the students.

It was found in the pre-Institute questionnaires that evaluation of the student by the preclinical departments in most schools is based in large part on the

TABLE 3.11

FACTORS UTILIZED BY MEDICAL SCHOOL DEPARTMENTS IN APPRAISING STUDENT ACCOMPLISHMENT

(Department head group)

Factor	Average rating* of extent to which appraisal based on each factor			
	Basic science		Clinical	
	Rating	N answering	Rating	N answering
Final oral exams	3.12	(286)	2.69	(565)
Final written (objective)	1.78	(368)	1.91	(658)
Final written (subjective)	2.05	(329)	2.40	(556)
Judgment, technical ability	2.42	(353)	1.94	(654)
Judgment of attitudes	2.48	(343)	1.87	(664)
Judgment of personality	2.85	(323)	2.13	(637)
Judgment of skills in handling patients	3.77	(199)	1.92	(611)
National Board, Part I	3.78	(229)	3.66	(453)
National Board, Part II	3.88	(214)	3.52	(465)
Oral examinations (other than final)	2.92	(267)	2.62	(525)
Research report	3.28	(237)	3.39	(476)
Thesis	3.66	(241)	3.45	(464)
Written exams (other than final)	1.57	(361)	2.69	(549)
Clinical notes	3.87	(202)	2.43	(528)
Rating scales	3.77	(206)	3.44	(409)
Other factors	2.84	(132)	2.95	(201)

* Categories checked by department heads were converted to numerical indices: much = 1, some = 2, little = 3, none = 4; numerical averages were then computed.

TABLE 3.12

AREAS IN WHICH MEDICAL SCHOOL DEPARTMENTS APPRAISE STUDENT ACCOMPLISHMENT

(Department head group)

Area for evaluation	Average rating* of extent of utilization			
	Basic science		Clinical	
	Rating	N answering	Rating	N answering
Over-all professional competence	1.96	(245)	1.48	(662)
Skill in handling patients	3.61	(173)	1.89	(606)
Professional attitudes and responsibility	2.20	(244)	1.54	(662)
Over-all personality	2.50	(232)	2.02	(631)
Acquisition of medical knowledge	1.31	(301)	1.41	(720)
Development of clinical skill	3.44	(178)	1.80	(625)

* Categories checked by faculty members were converted to numerical indices: much = 1, some = 2, little = 3, none = 4; numerical averages were then computed.

acquisition of knowledge of the basic sciences as measured by examinations. The clinical departments base their evaluation of students on professional attitudes and skills with patients as well as a knowledge of medicine (Tables 3.11 and 3.12). Comprehensive examinations are given in a third of the schools and the National Board Examinations are a part of the comprehensive examinations in 27 per cent of the schools (Tables 3.13 and 3.14).

At least a fair amount of competitiveness exists, according to the response of two-thirds of the special faculty group (Table 3.15). As for the students themselves, about three-fourths agree there is at least a fair amount of competitiveness among them, as shown in Table 2.7 in Chapter 2.

In evaluating students the usual devices are letter grades, numerical grades, and rank order, as shown in Table 3.16. These are employed by the faculty and are usually given to students and to hospitals considering internship applications (Table 3.17). The departments use the evaluation data on student performance to assess teaching, to rank students, to aid in counseling, to stimulate students, and to eliminate students (Table 3.18). The students indicate clearly their opinion that data obtained on student accomplishment should be used primarily as an aid in counseling students (Table 3.19).

TABLE 3.13

MEDICAL SCHOOL PRACTICES IN REGARD TO COMPREHENSIVE EXAMINATIONS

(Participants group)

Examination given	% of 92 schools		
	Yes	No	No response
As a requirement for promotion from one class to another	32	62	7
As a requirement for graduation	40	46	14

TABLE 3.14

NATIONAL BOARD EXAMINATIONS IN RELATION TO COMPREHENSIVE EXAMINATIONS

(Participants group)

National Boards	% of schools
Do form part of examination	27
Do not form part of examination	66
No response	7
Total N	(92)

TABLE 3.15

AMOUNT OF COMPETITIVENESS FOUND AMONG MEDICAL STUDENTS AS JUDGED BY FACULTY FROM EACH DEPARTMENT

(Special faculty group)

Department affiliation	% in each department citing degree of competitiveness					N in each dept.
	Great deal	Fair amount	Only a little	None	No response	
Anatomy	21	57	17	0	5	(115)
Biochemistry	19	51	15	4	11	(114)
Medicine	9	54	32	3	3	(371)
Microbiology	29	42	23	0	7	(77)
Obstetrics and Gynecology	10	53	32	3	2	(137)
Pathology	17	53	25	2	4	(125)
Pediatrics	6	49	36	5	5	(132)
Pharmacology	30	52	17	0	2	(66)
Physiology, Biology	25	52	12	0	12	(85)
Psychiatry	13	56	22	1	8	(167)
Public Health, Prev. Med.	8	54	18	3	18	(39)
Radiology	9	53	31	0	9	(59)
Surgery	7	56	30	5	3	(229)
Urology	5	63	26	0	5	(19)
Neurology	17	46	33	0	4	(24)
Ophthalmology	19	50	25	6	0	(16)
Anesthesiology	6	71	18	0	0	(17)
Otolaryngology	0	71	14	0	14	(14)
Dermatology	20	47	27	7	0	(15)
Other	16	36	39	0	9	(44)
Average	*13*	*52*	*26*	*2*	*5*	*(1865)**

* Of the 1889 respondents in the special faculty group, 24 were unclassified as to department.

TABLE 3.16

METHODS USED BY MEDICAL SCHOOL DEPARTMENTS TO RECORD EVALUATION OF STUDENT PERFORMANCE

(Department head group; multiple response)

Method of recording evaluation	% of dept. heads using method for each class			
	First year	Second year	Third year	Fourth year
Basic science department heads (N = 409)				
Letter grades	40	30	8	7
Rank in class	18	14	4	5
Numerical grades	33	21	5	5
"Pass" vs. "Fail" with no grades	6	5	3	2
Percentiles	3	3	1	1
Descriptive report	8	4	2	2
Other	3	2	1	1
No response*	30	48	83	84
Clinical department heads (N = 813)				
Letter grades	14	27	37	35
Rank in class	7	12	14	14
Numerical grades	10	22	29	25
"Pass" vs. "Fail" with no grades	3	4	7	10
Percentiles	1	3	4	4
Descriptive report	3	7	18	21
Other	1	1	1	1
No response*	73	47	26	28

* Large percentages of "no response" may be attributed to the fact that most departments do not teach classes to students in each year of medical school.

TABLE 3.17

STUDENT DATA REPORTED TO HOSPITALS BY MEDICAL SCHOOLS

(Participants group; multiple response)

Data reported to hospitals	% of 92 schools
Subject grades (letter or number)	42
Class standing by rank order	85
Passing grade with descriptive material	8
Description of clinical performance	71
Description of attitude or personality	78
Other	22
No response	7

TABLE 3.18

DEPARTMENTAL APPLICATIONS OF EVALUATIVE DATA ON STUDENT ACCOMPLISHMENT

(Department head group)

Evaluative data used	% of dept. heads	
	Basic science	Clinical
As an aid in counseling the student	69	51
To eliminate weak students	67	34
To rank students	70	65
To assess adequacy of teaching	73	75
To stimulate students to exert greater effort	63	48
No response	3	7
Total N	(409)	(813)

TABLE 3.19

STUDENT OPINION ON USE OF EVALUATIVE DATA ON THEIR ACCOMPLISHMENT

Preferred use of evaluative data	% of 3rd and 4th year students
As an aid in counseling the student	53
To eliminate weak students	3
To rank students	3
To assess adequacy of teaching	21
To stimulate students to exert greater effort	17
No response	3
Total N	(640)

TABLE 3.20

STUDENT OPINION OF FACTORS THEY CONSIDER IN JUDGING CLASSMATES AS MEDICAL STUDENTS

(Special student group)

Factors considered in judging classmates	Importance rank of each factor	
	Rating*	N answering
Skill in diagnosis	1.2	(1292)
Ability to establish rapport with patients	1.4	(1292)
Skill in dealing with the social and psychological problem of patients	1.6	(1296)
Extensive knowledge of medical facts	1.7	(1305)
Knowledge of therapy	1.8	(1284)
Ability to carry out research	2.8	(1302)

* Average ratings of students; 1 = major and 4 = none.

TABLE 3.21

STUDENT OPINION ON THE APPROPRIATENESS OF VARIOUS AREAS OF EVALUATION

(Regular student group)

Area of evaluation	% of 640 third- and fourth-year students citing appropriateness			
	During first 2 years		During last last 2 years	
	Most	Least	Most	Least
Over-all professional competence	8	9	59	8
Skill in handling patients	1	37	4	5
Professional attitudes and responsibility	5	3	9	6
Over-all personality	3	25	1	51
Acquisition of medical knowledge	78	1	5	13
Development of clinical skill	1	20	19	8
No response	4	4	4	9

TABLE 3.22

STUDENT OPINION ON FAIRNESS OF GRADING AND EVALUATION METHODS

(Regular student group)

Opinion on fairness	% of 3rd and 4th year students
Almost completely fair	28
Generally fair but some injustice occurs	60
Considerable injustice in the grading system	8
No opinion	3
No response	1
Total N	(640)

TABLE 3.23

STUDENT OPINION ON VALIDITY OF CRITERIA USED IN GRADING AND EVALUATION

(Regular student group)

Opinion on criteria	% of 3rd and 4th year students
Almost uniformly valid	12
Generally valid, but irrelevant criteria receive some weight	49
Fair proportion of criteria used are irrelevant	32
Criteria used are largely irrelevant	4
No response	3
Total N	(640)

The students' choices of adviser for counseling on educational problems were in the order: other students, a faculty friend, a faculty adviser, and the dean. Students found variable degrees of adequacy of the counseling available in medical schools, and they clearly preferred that the counselor be relieved of disciplinary functions. A good deal of Institute time was devoted to the important subject of student counseling, which is discussed in further detail in Chapter 4 and Chapter 5.

Students indicate that they would judge the performance of their peers first on skill in diagnosis and second on ability to establish rapport with patients (Table 3.20). Students appear to accept the usual practices and believe that knowledge of basic science should be used for their evaluation in the first two years and that professional competence and clinical skill should be the basis for evaluation in the last two years (Table 3.21). However, only 12 per cent of the students believe that the criteria employed in grading are uniformly valid (Tables 3.22 and 3.23). They think that hospitals utilize subject grades more than they should in intern selection; students consider clinical performance to be a more important criterion (Table 3.24).

Factors retarding the development of the student

Some of the problems that occurred in medical education in the United States during the first quarter of the twentieth century have been described by Lippard as follows:[1]

[1] Lippard, V. W, "The Yale Plan of Medical Education After Thirty Years," *J. Med. Educ.* 29, Sept. 1954, p. 17.

TABLE 3.24

STUDENT OPINION ON THE UTILIZATION AND DESIRABILITY OF VARIOUS CRITERIA EMPLOYED BY HOSPITALS IN INTERN SELECTION

(Regular student group)

Criteria employed by hospitals in intern selection	Student importance rankings*	
	Current utilization	Desired utilization
Over-all class standing by rank order or high-middle-low	1.7	2.8
Subject grades by letter, or numerical grades	2.4	4.1
Pass-fail grades with descriptive material	3.8	3.5
Descriptive material concerning your clinical performance	3.1	1.8
Descriptive material concerning your attitude or personality	3.9	2.8

* Figure reported is the mean of ranks assigned by the students: 1 = greatest importance; 6 = least importance.

During the first quarter of the 20th century, medical education in the United States was undergoing a dramatic upheaval. Many hospital schools, operated essentially as vocational schools, closed their doors and others became more directly responsible to their parent universities. The course of study was increased to four years and, of greater significance, preliminary instruction in the natural sciences was inserted without any serious effort to coordinate it with the medical program.

The result of these simultaneous changes was that many medical schools were suddenly transformed from undergraduate vocational colleges to graduate schools, but the methods of instruction remained at the undergraduate level. In some schools, grammar school methods predominated. Daily recitations were based on textbook assignments; lecture notes were memorized and regurgitated during weekly examinations; laboratory experiments were performed from manuals, with the principal goal a neat report rather than an understanding of the physiological mechanism they were expected to demonstrate; special interests and initiative to explore original ideas were discouraged by rigid schedules which permitted no time for independent thought.

As emphasized by the above quotation from Lippard, a number of intramural forces are recognized as retarding the growth of the student. These include his being treated in an authoritarian manner and given minor responsibilities in a lockstep curriculum. He may have minimum recognition as an individual and may be given excessive detailed information without the opportunity to think it through or work with it. He may be well trained technically and poorly educated. The student may be judged by arbitrary standards that have little relation to his potential activities in the profession of medicine.

Under such circumstances students may assume a passive and unresponsive role and become retiring, fearful, and hostile. Under some circumstances the competition for grades and for rank may become so extreme that students will hide information from one another; they may cheat and use extreme methods to obtain high marks. The student who seeks high grades as his major objective may have little interest in education. Also, the intensive pressure of time for acquisition of knowledge and learning of techniques within the prescribed four-year curriculum may leave little opportunity for him to think or to seek out new knowledge, a point that was emphasized in the round-table discussions at the 1957 Institute. Some participants also pointed out that there may be a passion among many students to remain anonymous and to avoid contact with the faculty and administrators. This is done to keep out of trouble. Students may hate

their program because they fear it, do not understand the reasons for it, and see little relation between the way they are taught or evaluated and the objectives of medicine.

Graduate education in medical schools

The need for M.D. students to obtain an education as members of a graduate school is indicated by the many challenges that are presented to the medical profession as advances occur in the sciences and humanities. Bush gives a resounding challenge concerning the scientific limitations of medicine:[2]

> Medicine is still largely empirical in spite of scientific progress in biochemistry and physiology; it has new and powerful tools but understands and controls them only vaguely; and its progress toward logical processes, based on sound, far-reaching hypotheses, is slow because of the appalling complexity of its subject matter. Biochemistry is in its infancy—an exceedingly attractive field for men of courage and fertile minds. This is true also of psychology. And where these meet to attempt an attack upon the brain processes of man, there is a situation comparable to that in evolution before Darwin; many of the essential notions have been or are being excavated; but the critical syntheses all still lie ahead.

Improvement for medicine probably lies in further evolution of the medical school as a graduate school for the education of the M.D. student, for the advancement of knowledge, and for the conduct of research in health services. Some of the important problems and factors relating to the M.D. student are outlined below.

Ideally, in a graduate school it is expected that the student will be treated as an adult who is held responsible to learn the subject matter of a basic field and several allied ones. He is required to perform original work independently. From the first, however, he is identified as an individual and has a prolonged personal contact (preceptoral or tutorial relation) with one or several members

TABLE 3.25

BASES FOR EVALUATION OF DIFFERENT TYPES OF GRADUATE STUDENTS

Type of student in graduate school	Basis for evaluation	
	Preclinical departments	Clinical departments
Ph.D. student	Individual preceptorship* Examinations required Research and thesis	
Postdoctoral Ph.D.	Individual preceptorship No examinations Research productivity	
Research project M.D. student	Individual preceptorship No examinations Research and report	Individual preceptorship No examinations Research and report
Regular curriculum M.D. student	† Examinations required	Individual preceptorship may or may *not* occur Examinations Case studies and reports
Internship-residency M.D. graduate		Individual preceptorship may or may *not* occur Care of patients and reports

* The term preceptorship is used to imply prolonged personal (tutorial) contact between a faculty member and one or more students as a regular part of the curriculum.

† Usually there is no individual preceptorship as part of the regular curriculum.

[2] Bush, Vannevar, "For Man to Know," *The Atlantic* 196, Aug. 1955, p. 29.

of the faculty who offer continuing intellectual discipline.[3] The teachers are colleagues and the atmosphere is friendly. The student is counseled and encouraged to develop his own abilities and originality. He has a "home" laboratory and he learns through exercises that may include laboratory research, tutorial conference, seminar, and formal courses. He is judged on the knowledge he has obtained in his courses, his ability in his field, his initiative, his independent research, and his thesis. Also, he is evaluated for his dependability, integrity, cooperation, and personal qualities.

Although a great revolution occurred at the beginning of this century, when the departmental structure of the German universities was adopted in medical schools in America, the idea of treating the medical student as a graduate student was somehow omitted. This is evident from the different methods of planning for the Ph.D. student and the M.D. student, as shown in Table 3.25. The Ph.D. student and the postdoctoral Ph.D. are classically graduate students. They have prolonged individual preceptorships and time is adjusted to the individual requirements of the student. The course may require more than four years, during which time the Ph.D. student must demonstrate that he can educate himself and do research.

The education of the M.D. student, however, does not usually require a demonstrated ability to do research in the biological sciences. Furthermore, there is usually no prolonged individual preceptorship for him with members of the preclinical departments. He is evaluated almost exclusively by examinations. Although an exception may occur if students do research projects in a preclinical department, it is apparent that the M.D. student is usually given *only course work* by the preclinical departments. There may be small group conferences, but these can hardly be compared with the prolonged contact of the Ph.D. student with one or more members of the faculty.

Accordingly, the M.D. student usually must look to clinical fields for a prolonged individual preceptorship. This challenges the clinical departments to offer an intellectual discipline to the M.D. student that is comparable to the discipline offered the Ph.D. student by his departments. If the M.D. student does not experience extended personal contact with, and the critical guidance of, a preceptor at some time in medical school, then the student has *not* experienced one of the main features of a graduate school.

Coverage of subjects

It is apparent that the knowledge and skills of the sciences and humanities will continue to accumulate at an increasing rate, and thus coverage of any field as broad as medicine will never be possible. Faculties will need continuously to select, to synthesize, and to try indicating to students the knowledge considered most important. Inevitably there must be an emphasis on the understanding of principles, since remembering the vast detail is neither possible nor as useful as employment of principle. The growing number of special fields within preclinical and clinical departments has made coverage of these fields impossible. Accord-

[3] The prolonged personal contact may occur at intervals but is a regular curricular relation between a faculty member and one or more students.

ingly, differing degrees of correlated or cooperative teaching have evolved to permit emphasis on a limited number of principles and a limited number of patients.[4]

The scientific method

One of the key advances of this century is the application of the scientific method to the many problems, whether medical, biological, physical, or humanitarian. In medical schools there has been an increasing conscious effort to have the student learn the scientific method. One approach is that of teaching biological sciences by having the students perform laboratory projects. There also is a marked increase in research being done by students in medical schools, especially in the summer.

In the pre-Institute survey 43 per cent of 1,388 medical students in all four years reported that they had participated in research activities (Table 3.26); also 62 per cent of students indicated that they could apply to drop out for a year if they wished to do research (Table 3.27); 90 per cent or more of the department heads favored elective research for students (Table 3.28). Methods of education are being used that require the student to solve problems on his own and report the results for critical appraisal by the faculty (Table 3.29), which is consistent with the students' indication that they prefer to have conflicting material presented with comment from the instructor (Table 3.30).

TABLE 3.26

STUDENT COMMENTS ON RESEARCH ACTIVITY

(Regular student group)

Class	% of students commenting on a joint or independent project			N in each class
	Yes*	No	No response	
First year	33	66	1	(394)
Second year	46	53	1	(354)
Third year	48	52	0	(324)
Fourth year	46	53	1	(316)
All students	43	57	1	(1388)†

* The average number of months devoted to a research project is 4.5.

† Of the total N of 1391 students, 3 are unclassified as to year.

TABLE 3.27

STUDENT REPORTS OF SCHOOL POLICIES ON DROPPING OUT FOR A YEAR TO DO RESEARCH

(Regular student group)

Policy	% of students
Permitted	62
Not permitted	23
Unknown	11
No response	5
Total N	(1391)

TABLE 3.28

DEPARTMENT HEAD OPINION ON ELECTIVE RESEARCH FOR MEDICAL STUDENTS

(Department head group)

Opportunity for elective research	% of department heads	
	Basic science	Clinical
Students should have	94	90
Students should not have	5	7
No response	2	3
Total N	(409)	(813)

[4] Ham, T. H. "Current Trends in Medical Education: A Research Approach," *J. Med. Educ.* 33, March 1958, part 2, p. 297.

TABLE 3.29

METHODS BY WHICH A STUDENT SOLVES PROBLEMS ON HIS OWN IN BASIC SCIENCE AND CLINICAL DEPARTMENTS

(Department head group)

Methods used	Basic science departments		Clinical departments	
	Per cent Yes	N*	Per cent Yes	N*
Students often report in seminar on their laboratory experiments	37	(109)	17	(417)
Students make a major contribution to their own clinical pathologic conference	8	(312)	32	(358)
Students regularly discuss their own reading on clinical problems (e.g., on ward rounds)	9	(322)	60	(193)

* The number in each department who answered each query. Percentages are based on this number.

TABLE 3.30

STUDENT OPINION ON BEST METHOD FOR TEACHING MEDICAL SCHOOL SUBJECTS

(Special student group)

Best teaching method	% of students
The lecturer should present conflicting material, and indicate his preference	64
He should present conflicting material, but leave it to the student to draw his own conclusion	16
He should give the student "straight facts" without presenting conflicting material	19
No response	1
Total N	(1322)

Self-education and methods of instruction

After graduation the physician is required to educate himself throughout a long career in the medical profession, and thus it is believed essential for the student in medical school to be responsible for much of his own education, to demonstrate that he can obtain information on his own initiative and relate it to medicine. Accordingly, the faculty must create a program that *requires* self-education and must set the example and the standards of attainment and hold the student to the standards. As shown in Table 3.31, acquiring habits of continuing self-education in medical school was ranked highest in importance rank among ten objectives of medical education by medical faculty members.

Certainly the classic methods of instruction will continue to be used as they are needed—the lecture, demonstration, conference, seminar, tutorial discussion, report, thesis, and examination—a subject discussed further in the following section of this chapter. The faculty is required always to balance the degree of student participation with the need to orient students to a large number of principles and subjects. The study of the patient is one of the most demanding and potentially rewarding experiences in the medical school. It combines the need to help a person with the employment of the scientific method in evaluating a case in order to establish a diagnosis and carry out treatment. Continuing advances are needed both in the knowledge and in the means of obtaining data from the patient to verify the accuracy and limitations of diagnosis and treatment. Here the scientific method is needed to replace empiricism.

TABLE 3.31

OBJECTIVES OF MEDICAL EDUCATION: AVERAGE RANKS ASSIGNED BY FACULTY

(Special faculty group)

Faculty group	Objectives*										N in each group
	A	B	C	D	E	F	G	H	I	J	
Average ranks†											
Basic science	3.9	5.8	3.0	2.5	6.6	6.6	5.6	6.2	3.2	7.4	(574)
Full-time clinical	5.1	5.7	3.3	2.4	7.0	7.1	5.6	6.4	3.3	7.9	(837)
Part-time clinical	4.4	5.6	3.6	3.0	6.7	7.7	5.5	6.1	3.3	8.4	(384)
Total	4.6	5.7	3.3	2.5	6.8	7.0	5.6	6.3	3.3	7.8	(1795)
Ranked averages†											
Basic science	4	6	2	1	8.5	8.5	5	7	3	10	
Full-time clinical	4	6	2.5	1	8	9	5	7	2.5	10	
Part-time clinical	4	6	3	1	8	9	5	7	2	10	
Total	4	6	2.5	1	8	9	5	7	2.5	10	

* Key to objectives:

A. Preparation for general practice.
B. Developing understanding of illness in its social setting.
C. Acquiring knowledge of the basic medical sciences.
D. Acquiring habits of continuing self education.
E. Developing understanding of the role of the physician in the community.
F. Preparation for research and teaching.
G. Developing ability to evaluate and manage the emotional aspects of illness.
H. Developing skill in winning and holding the confidence of patients and families.
I. Acquiring practical knowledge of clinical medicine, surgery, obstetrics, etc.
J. Preparation for specialty practice.

† 1 = highest rank; 10 = lowest rank

TABLE 3.32

OBJECTIVES OF MEDICAL EDUCATION: AVERAGE RANKS ASSIGNED BY STUDENTS

(Special student group)

Class	Objectives*										N in each class
	A	B	C	D	E	F	G	H	I	J	
Average ranks*											
First year	3.9	6.0	3.2	4.7	6.9	8.2	5.2	6.0	3.4	7.6	(686)
Second year	3.8	5.9	3.4	4.5	6.9	8.2	5.4	6.1	3.2	7.3	(650)
Third year	4.1	5.8	3.5	4.1	6.7	8.3	5.2	6.3	2.8	7.9	(638)
Fourth year	4.4	5.8	3.7	3.9	6.5	8.2	5.3	6.1	3.0	8.0	(632)
All students	4.0	5.8	3.4	4.3	6.8	8.3	5.3	6.1	3.1	7.8	(2606)
Ranked averages*											
First year	3	6.5	1	4	8	10	5	6.5	2	9	
Second year	3	6	2	4	8	10	5	7	1	9	
Third year	3.5	6	2	3.5	8	10	5	7	1	9	
Fourth year	4	6	2	3	8	10	5	7	1	9	
All students	3	6	2	4	8	10	5	7	1	9	

* See footnotes to Table 3.31.

Responsible performance required of the student

There is considerable agreement among basic science and clinical faculty concerning the objectives of medical education and the motives students should have for medicine as a profession. One might conclude from the importance ratings of objectives and motives shown in Tables 3.31 and 3.33 that medical schools require responsible performance by the student in at least six kinds of activities (not necessarily in this order): (1) being a professional person in a graduate school concerned with medicine, (2) learning methods of self-educaton, (3) learning the scientific approach to problems, (4) learning biological sciences, (5)

TABLE 3.33

MOTIVATION FOR PROFESSIONAL TRAINING: AVERAGE RANKS ASSIGNED BY FACULTY IN TERMS OF IMPORTANCE MOTIVES SHOULD HAVE FOR STUDENTS

(Special faculty group)

Faculty group	Motives*										N in each group
	A	B	C	D	E	F	G	H	I	J	
Average ranks†											
Basic science	4.2	6.5	4.0	2.5	8.3	5.2	4.5	5.6	6.7	2.7	(574)
Full-time clinical	4.5	6.8	4.3	2.5	8.7	5.4	4.5	5.8	6.6	2.9	(384)
Part-time clinical	4.9	6.7	4.5	2.4	8.9	5.4	5.4	5.7	7.0	3.1	(837)
Total	4.5	6.7	4.2	2.5	8.6	5.3	4.9	5.7	6.7	2.9	(1795)
Ranked averages†											
Basic science	4	8	3	1	10	6	5	7	9	2	
Full-time clinical	4.5	9	3	1	10	6	4.5	7	8	2	
Part-time clinical	4	8	3	1	10	5.5	5.5	7	9	2	
Total	4	8.5	3	1	10	6	5	7	8.5	2	

* Key to motives:

A. Desire to acquire knowledge for its own sake.
B. Desire to be economically secure.
C. Desire to be technically proficient.
D. Desire to help others.
E. Desire to attain social prestige.
F. Desire to have opportunity for self expression.
G. Desire to make original contributions to medical science.
H. Desire to acquire self understanding.
I. Desire to attain professional prestige.
J. Desire to contribute to the welfare of society.

† 1 = highest rank; 10 = lowest rank.

TABLE 3.34

MOTIVATION FOR PROFESSIONAL TRAINING: AVERAGE RANKS ASSIGNED BY STUDENTS TO 10 MOTIVES

(Special student group)

Class	Motives*										N in each class
	A	B	C	D	E	F	G	H	I	J	
Average ranks*											
First year	6.4	5.4	5.3	2.8	7.7	4.7	6.7	5.9	7.0	3.7	(688)
Second year	6.0	5.1	5.3	2.5	7.7	4.9	7.6	6.1	6.8	3.6	(648)
Third year	5.9	5.2	5.5	3.0	7.4	4.5	6.9	6.0	6.8	3.9	(633)
Fourth year	6.0	4.9	5.4	3.0	7.3	4.6	7.1	6.1	6.8	3.7	(627)
All students	5.9	5.2	5.4	2.8	7.6	4.7	6.9	6.0	6.9	3.7	(2596)
Ranked averages*											
First year	7	5	4	1	10	3	8	6	9	2	
Second year	6	4	5	1	10	3	9	7	8	2	
Third year	6	4	5	1	10	3	9	7	8	2	
Fourth year	6	4	5	1	10	3	9	7	8	2	
All students	6	4	5	1	10	3	8.5	7	8.5	2	

* See footnotes to Table 3.33.

learning clinical medicine, and (6) demonstrating ability in patient care. If the student is held responsible for performance in these activities, methods are needed to guide him and to evaluate his performance.

Response of the student to his environment

The student in medical school is usually strongly motivated to become a physician and believes the most important motives for the study of medicine are to help others and to contribute to the welfare of society (Table 3.34). It appears that in looking to the faculty for guidance and further insight into his education,

this student asks two major questions: (1) what does the faculty believe is important and (2) how am I doing? The student is alert and rapidly responsive to the emphases of the faculty and particularly to the criteria used in evaluating him personally. There is no doubt that the faculty members set the educational environment by *showing what they want* of the student.

In the biological sciences the student will work hard to understand and integrate basic principles if he is asked to do so and is evaluated on it. Conversely, if he is asked to regurgitate masses of poorly understood detail he will work toward this process. In clinical fields, if he is evaluated on a mature knowledge of medicine and excellence in patient care, he will respond. If independent study, reading, analysis, and reporting on biological and clinical problems are required and evaluated, the student will proceed vigorously with these processes of self-education and the use of the scientific method. If he is required to do a study in depth, to conduct a project, or to write a thesis and is evaluated on the excellence of his scientific method of approach and his writing, he will proceed toward this goal. If he knows that free time and electives are available and that he is expected to demonstrate his own initiative for his education and for development of his unique interests and objectives, he will try to accomplish these objectives. If he knows that he is expected to demonstrate mature and responsible behavior as a person and as a student physician, with an increased understanding of himself and of patients, he will work toward these goals. If he knows that internships are attained by grades, by class rank, by what the clinician says, he will work for all of these.

It is obvious that the student will respond to the emphasis, guidance, counsel, and evaluation of the faculty. If all the emphasis is placed on examinations, the student will respond by putting his major effort into cramming for examinations. Accordingly, the faculty must derive its methods of evaluation of students from the objectives of the program itself and must inform the student as completely as possible of the objectives and the criteria that will be used in judging performance. Methods of evaluation are limited indeed and require continuing study and improvement. Different types of evaluations and examinations are required for preclinical and clinical years and each has its value and limitations.

The examination

The examination, for example, can serve as an aid in the student's self-education, as a guide to his knowledge and understanding, and as a measure of the instruction. The examination, rather than an end in itself, may well be used as a basic requirement to *qualify the student* so he may go on to seek distinction by educating himself and by his performance in any of the several fields within the medical school. The examination, however, is just one part of the whole qualifying performance. It should be treated as such and put in its proper perspective. Rigid ranking of students usually has the weakness of emphasizing the examination grade beyond its proper significance.

The accuracy of ranking a student is no better than the accuracy and reproducibility of the observations made. If the student is evaluated broadly for the many objectives of the medical school, an approximate standing can be developed

for each criterion. The predictive value of these criteria for future performance is important but requires much more study. It is difficult to believe that ranking all the students in a class in a single rank order is as meaningful as the detailed study of the many criteria of performance of the individual student. Wisdom dictates also that the student will always know how he has been evaluated, i.e., as a unique individual or as one place in a rank order. Herein does the faculty control the student's emphases in medical school and his motives in study.

Conclusion: factors encouraging the development of the student

It is believed essential that the student of medicine be treated as a maturing individual in a graduate professional school so that he may develop his full potential. In a graduate school it is considered essential that the student have the intellectual discipline and guidance that result from extended personal contact with one or more members of the faculty as preceptors. Ideally a preceptorship would occur in each year as an essential part of the regular required curriculum. Every effort should be made to encourage the student to develop his own initiative and his abilities. He should be guided and evaluated for his performances: as a responsible person, in self-education, in the scientific method, in knowledge of biological science, in clinical medicine, and in the care of patients. This requires delegating responsibilty to the student and requires him to qualify on adequate standards in each of these fields of performance. Excellence, ability, and unique development of a student should be encouraged and recognized.

The processes of evaluation and counseling will affect the educational environment by placing emphasis on the criteria that are selected for judging the student and by treating the student in a friendly, helpful, and understanding manner. If both evaluation and counseling of the student are done in a mature manner and are related to the stated objectives of the medical school and the medical profession, then the student will recognize the validity of the evaluation and counseling and will have confidence in the faculty.

The student will not work for marks alone if he knows the faculty will be evaluating him broadly, on multiple criteria, and as an individual person. The educational environment that results from mature treatment of the student will have a profound influence on his attitudes, his methods of study, his emphasis in learning, and especially his willingness to develop his own unique abilities. The cooperation and interaction of the faculty and students set the pattern for learning. The objectives in this instance are the long-range goals of medicine as a profession.

B. The Learning Process in a School of Medicine

BY STEPHEN ABRAHAMSON
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Student reactions to pressure

IN MATHEMATICAL TERMS the least common denominator in the medical school setting is one of pressure on the medical student. There is pressure on him to learn a lot of factual material in a very short time; there is pressure on him to acquire some brand-new skills in the same short period of time. The danger, research has shown, is that such pressure tends to develop certain reactions in a learner. *Cramming* is a famous one. Students will cram facts for an examination or for some other kind of appraisal that they must undergo. *Cheating* is another one; cheating is a direct result of the combination of pressure on the student (1) to learn as much as he perceives he has to learn and (2) to perform in a fashion that he thinks is expected of him.

A third possible reaction to pressure is a general *loss of respect for scholarship*. A distinct avoidance of any nonrequired activities may develop, as evidenced by an example I witnessed at our own University of Buffalo Medical School. In this situation, students were presenting material to their peers, and one pair of students did a not completely inadequate job, but certainly a minimally adequate job. They were questioned on this by the instructor; their response was very polite and very firm. They said, "After all, it doesn't count on our grade at all, does it?"

Most of the evidence we have on the reactions of students to pressure come from the research literature of education, and the data I might cite as relevant here come largely from studies done with grade-school children and high-school students. Furthermore I am making an assumption here that one would have to test: the assumption that many of the generalizations coming out of these researches can be applied to the medical education setting. My own experience in the last year and a half at the wrong end of the whip held by Dr. George E. Miller (see Chapter 1, Section A) indicates that this should be true.

Medical educational objectives certainly, and basically, include preparing the medical student to become a practicing physician. Now with the continuing emphasis, almost a fond hope, that the medical student will ultimately become a perpetual student, it seems to me we have a fascinating dilemma. The pressures that we put on students through our educational process actually are producing a very different kind of product from that desired, a result that is almost diametrically opposed to the objectives of undergraduate medical education.

I doubt that there is a simple answer for the dilemma. I would advance firmly that education holds no panacea for this type of situation. However, certain steps seem to be in order, and I'd like to suggest some of these here.

Continual examination of objectives is in order. Note the word "continual." I feel very strongly that unless we keep in mind our objectives, unless we review them frequently, we will lose them. To borrow from a colleague in education, a man named Harnack, there are essentially four levels of objectives that we have to look at and worry about. First, and obviously, the *broad medical school objectives* are tremendously important. Secondly, each department has its objectives, and these *departmental objectives* must be served by the learning experiences provided for the students. Thirdly, each topic within the department has its own objectives and these *unit objectives*, too, must be served. Then fourth, of course, any specific learning experience or learning situation provides *lesson objectives*.

This last set of objectives is usually the one we pay a lot of attention to. We are pretty confident as we meet students in a laboratory, in a conference situation, or in a lecture situation, wherever it happens to be, that we know what we want to do. But the difficulty seems to be that very often, if we add all of the objectives of these individual learning experiences, we don't come up with a sum total that in any way provides for the fulfillment of the major objectives of medical education, and herein I think is a tremendous problem.

There is one possible solution, or at least approach to one, exemplified by Western Reserve's annual faculty meeting that I attended at the Gates-Mills School last spring. It seems to me that a professional group of medical teachers must get together as these men and women did to talk about objectives, about successes or failures, and about whatever problems have come up. In this way we can approach some kind of an answer to keeping objectives in mind without becoming slaves to the process itself.

Now, I would like to suggest one principle for examination by those in medical education. It is this: *every* activity in the medical school should serve to facilitate learning on the part of the student. If this principle is accepted (there are those who may wish to challenge it), then I think all activities must be subject to the test: Do they serve to facilitate learning? Do the examinations that are given serve to facilitate learning? Do grades that are given to students serve to facilitate learning? If we assign students rank in their class, does this serve to facilitate learning?

I have a strong suspicion on the basis of the literature in education that we make symbol-chasers out of our students. They are no longer concerned with objectives as we see them (and as possibly they saw them), but rather they are concerned with the *symbols* of the accomplishment of these objectives.

Do lectures serve to facilitate learning or do they not? I would very much like to go on record at the moment as suggesting that the lecture is a very effective tool and should never be discarded as long as there are reasons for using it. However, we do have to worry a little bit about whether the lecture is inappropriate in a particular situation, and also whether it qualifies for the timeworn definition that "a lecture is a process by which material passes from the notes of the professor to the notes of the student without going through the minds of either." Quite possibly under such circumstances the lecture should be discarded.

What is the feeling among medical faculty members about putting pressure on students? I believe that pressure for its own sake is not needed and is indeed artificial; we should not hold drill sessions for the sake of drill, practice sessions for the sake of practice—the process that in high schools we sometimes call "building character." If the criterion is that every activity should facilitate learning, there is no reason for memorizing facts if it is just for the sake of memorizing facts, for measuring achievement if it is just for the sake of measuring achievement, and so forth and so forth. Perhaps some of you in medical education would challenge these observations, so I have laid them out for you to attack or examine as you see fit.

Some cautions

Now I would advance some caution from the "professional educator's" point of view. First, please be very careful not to throw out old techniques because they are old, for some old techniques are magnificent. Take the lecture, for instance, that I mentioned above. Actually there is no reason to abandon the lecture. I have a lot of fun teaching graduate courses in education, and sometimes I lecture. In one course, after I lectured the first night, some students came up and said, "We thought you were a progressive educator. How come you lecture?" And I said, "It seems to be the appropriate technique to use here." If a lecture is appropriate it is to be used; if it is inappropriate it ought not be used.

On the other hand, please don't let the foregoing convey the notion that there are only the tried-and-true methods in education. We have developed many new techniques for presenting subject matter, for reviewing material, for appraising student progress, for reporting student progress both to the student and to the administration, and the like. We have found in our work at Buffalo that medical teachers are receptive enough to examine them, to test them, and to react honestly to the possibility of using these new techniques in their work. What I want to emphasize is that innovations should in no way be considered panaceas, nor should the acceptance of new techniques necessarily hasten the demise of old ones.

I would suggest a second caution—please avoid an error that some of us in education have made. *Don't become faddists.* If there is a fad that seems popular at the moment, some people in education will seize on it and claim it as the answer to all the ills in education. We have seen some of the dreadful effects of such faddism, and if I were to write a definitive volume on education I have the title for it at least: *From Sadism to Faddism.* A few fad-potentials are noted below.

1. *Size of group.* In education we have an idea that the smaller the group the better the learning situation. That is not always true. Sometimes it is true and sometimes it isn't. Appropriateness is the key word.

2. *Integration of subject matter.* Sometimes it is very good to bring together two disparate subfields. Sometimes it is not good at all and completely artificial. Most of the time I think it depends on the instructors and their willingness and ability to bring some of these things together.

3. *Giving up grades entirely.* This is something that many of our education people have been overly enthusiastic about. Grading may be essential in some instances and not in others.

4. *Overuse of some techniques.* In some cases discussion fits the description of the critics of discussion: a general pooling of ignorance. I don't mean to suggest that a discussion group is not an effective tool, but it is an effective tool in a certain setting and it is an ineffective tool in another setting.

Last of all, by way of caution, I would suggest that anything that is done in the way of change in education needs to be planned carefully and tested equally carefully. There is a real underlying danger in faddism of simply rearranging categories and then falling into what Professor Harnack labels "hardening of the categories." I think we can fall into this trap if we defend a particular approach without asking at the same time: How do we change it when we are tired of it? What do you think would be something better?

CHAPTER 4

Noncurricular Factors Affecting the Medical Student

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TOPIC III of the 1957 Institute concerned itself with noncurricular factors affecting medical students and gave particular attention to the facilities provided by schools to help the student meet his difficulties with a minimum disruption of, and distraction from, his medical education.

It is not really possible to separate the curricular from the noncurricular problems that affect the medical student, since both categories are necessarily closely interrelated. However, at the present time when it is fashionable to concentrate attention upon curriculum, it is important not to forget the importance of such noncurricular problems as the student's struggle to meet the costs of medical education, medical student housing, facilities for recreation, and services designed to assure the student's physical and emotional health.

Preceding the Institute, questionnaires were designed for submission both to Institute participants (representing medical schools) and medical students: (1) in order to define the magnitude of the problems referred to above and to describe existing facilities for their management, and (2) in order to compare student and school *opinion* of the importance of the problems and of the preferred means for their solution. This chapter covers the sources of nonacademic problems and the means of helping students meet them; it is based largely on highlights from the results of these student and participant questionnaires and includes pertinent excerpts from the participants' discussions of the questionnaire material at the Institute.

SOURCES OF NONACADEMIC PROBLEMS

Medical student marriage

The proportion of married students in medical school has risen sharply since World War II. The results of the pre-Institute survey reveal that 40 per cent of today's students are married and an additional 9 per cent are engaged; of the married students 47 per cent have no children, 29 per cent have one child, and the remainder have two or more children (see Tables 2.3 and 2.4 in Chapter 2). Because of this high incidence of marriage, the following sections of this chapter have unavoidably touched on the important implications of marriage in such areas as construction of living quarters, provision of recreational facilities, and provision of health benefits for wives and children of students. In fact the phe-

nomenon of medical student marriage was a relevant point of discussion throughout the entire Institute.

Medical school representatives recognized that earlier marriage among students is an established trend in our society, one that no mere faculty member should have the temerity to attempt to alter. It was generally believed that earlier marriage among medical students was accepted with little concern by younger faculty members, but sometimes regretted by older faculty on the basis of an assortment of unproven beliefs. There was considerable interest among Institute participants in acquiring more valid information about the attitudes, values, and judgments of married and unmarried students, for such comparative information would be of value not only to teachers of medicine, but to those concerned with the preparation of the student for medical study.

Institute discussion groups indicated a variety of reasons why student marriage might have *harmful* effects; these could be summarized as follows:

1. Being supported by his wife may act to decrease the medical student's self-esteem and cause him to have guilt feelings.
2. When the wife is unoccupied—jobless or childless—she is likely to be bored and resentful of the demands medical study makes on her husband.
3. The advent of a wife's illness or pregnancy, with the consequent additional expense and the loss of income from her employment, can result in immediate and pressing financial problems that distract the student from his studies.
4. The wife who must remain in a low financial bracket for a longer period of time than her contemporaries may express discontent (often shared by the student husband), and this source of worry may also distract the student from his studies.
5. Married students, particularly those with children, are influenced by financial considerations in the selection of internships and to an even greater extent in the selection of residencies. It may be that such students will be unlikely to choose one of the less remunerative medical careers.

A number of potentially *beneficial* effects of marriage on the medical student were also suggested:

1. There might be some financial advantage in that the married student's costly extracurricular activities are diminished.
2. A successful marriage may exert a maturing and sobering effect on the student.
3. The student develops responsibility and is afforded companionship in marriage.
4. The student father in all likelihood will be at home more during his years of training than later in his career.
5. Parenthood provides a good practical course in pediatrics.
6. There are both psychological and physiological advantages in marrying and having children early.

There was general agreement at the Institute that medical students' wives may be an enormous influence—good or bad—on the happy conduct of medical school life. It was recommended that effort should be made to arrange group social activities for medical student wives and to cultivate participation by the wives in their husbands' efforts to become physicians; the faculty should concern itself with the influence of the wife upon the student.

In conclusion, it may be said that the Institute recognized that too little is known of the effects of marriage upon medical students. There is undoubted need for study and enlightened planning to foster the assets and suppress the liabilities of marriage as a noncurricular force in the medical student's life.

Institute discussion groups clearly felt that the length and cost of medical education prevent many well-qualified students from entering the medical profession. Many of these students are turning to other scientific endeavors because they offer more rapid financial reward; other potentially qualified young people never even go on to college but enter a trade or other wage-earning occupation right out of high school. Medicine is thus suffering from loss of good candidates.

Financial insufficiency is not only an increasing determinant of the kinds of students who apply for entrance to medical school today; it significantly affects the performance of many students during their years in medical school and influences, often unfavorably, their choice of postgraduate clinical training and their ultimate selection of a career within the medical profession. Furthermore, the increasing incidence of marriage among medical students compounds their financial problems in many instances.

Only about one-fourth of the Institute participants thought that financial problems seriously affect the work of the financially embarrassed students and jeopardize their academic standing in school (Table 4.1). The remainder believed that financial problems have some adverse effects on the students' performance, but not to the extent of jeopardizing their academic standing.

TABLE 4.1

EFFECT OF FINANCIAL PROBLEMS ON THE ACADEMIC STANDING OF MEDICAL STUDENTS

(Participants group)

Effect on academic standing	% of schools commenting on financial problems		
	Tax supported	Private	Total
Seriously affects work, jeopardizes academic standing in school	28	21	24
Affects work but not to extent of jeopardizing academic standing in school	63	63	63
No apparent effect on school work	0	2	1
No response	9	14	12
Total N	(43)	(48)	(91)

TABLE 4.2

STUDENT ESTIMATES OF EXPENSES FOR THE YEAR 1956–57

(Regular student group)

Expense item	Average estimated expenses	
	Married	Not married*
Tuition and fees	$ 701	$ 744
Books, instruments, and supplies	176	195
Room and board (or estimated value)	1450	674
Other living expenses	1090	523
Total	*$3420*	*$2195*
Total N	(559)	(832)

* Here and in Tables 4.3, 4.4, and 4.5 the "not married" group includes 125 engaged; 695 single; and 12 widowed, divorced, and separated students.

Two additional and interesting considerations emerged from the participants' discussions at the Institute, namely, that the following factors probably contributed to the increased financial difficulty experienced by today's medical student population: (1) the policy of medical schools to base selection of applicants more on apparent potential than on ability to pay, and (2) changing concepts in the students' minds of needs beyond necessities.

In the paragraphs that follow, the financial problems of medical students are discussed in some detail, along with a few approaches to their solution. The tables reproduced here are based on the pre-Institute survey; further detail on student income, expenses, and school loan policies will be found in the supplementary tables in Appendix A.

TABLE 4.3

AVERAGE PER CENT OF ANNUAL STUDENT INCOME FROM VARIOUS SOURCES

(Regular student group)

Sources of income	Average % of student income from each source	
	Married	Not married
Vacation earnings	13	21
Current earnings (own)	10	8
Current earnings (spouse)	33	1
Parents' help (gift)	19	43
Parents' help (loan)	6	7
Trust or insurance	1	1
Loan from school	1	1
Loan from other sources	3	3
Savings	3	4
Independent income	1	1
Scholarship or fellowship	3	5
G.I. Bill	4	3
Other	2	2
Total N	(559)	(832)
No response N	(4)	(14)

TABLE 4.4

PRESENT DEBT OF MEDICAL STUDENTS

(Regular student group)

Student group	Median debt	% of students not in debt	Student N	
			Total	No response
Married	$1821	49	(559)	(6)
Not married	934	69	(832)	(4)

TABLE 4.5

ESTIMATED DEBT OF MEDICAL STUDENTS AT END OF FOURTH YEAR

(Regular student group)

Student group	Median estimated debt	% of students not expecting debt	Student N	
			Total	No response
Married	$2689	46	(559)	(10)
Not married	2111	61	(832)	(14)

Student income and expenses

Table 4.2 indicates the medical students' estimates of their annual expenses. It is evident that the living expenses of married students are more than double those of unmarried students. The sources on which both married and single students draw to meet their expenses are outlined in Table 4.3, and it is of interest to note that the combined earnings of husband and wife provide 56 per cent of the married students' annual income; only 30 per cent of the average unmarried student's income is derived from his own earnings. Parents of medical students now contribute nearly half (43 per cent) of the costs of their unmarried children's annual expenses and only one-fifth of their married children's expenses. Since married students have greater expenses than unmarried, the average dollar contributions do not differ as much as the percentages suggest. An estimated average of $944 per year is contributed to the unmarried son or daughter, $650 to the married. Outside sources such as loans, trusts, scholarships, G. I. Bill, etc., contribute less than 20 per cent of the annual costs.

Student indebtedness

Despite the persistent efforts of students to meet their annual expenses by taking summer jobs and working part time during the active school year, Tables 4.4 and 4.5 indicate that a large proportion of students accumulate significant

TABLE 4.6

KIND OF MEDICAL STUDENT EMPLOYMENT

(Regular student group)

Employment status	% of students
Job in which medical training is used	27
Job in which medical training is not used	8
Not employed	64
No response	1
Total N	(1391)

indebtedness during the course of their medical education. It is often argued that marriage is a financial aid to the medical student because of the wife's earnings, but the data suggest the not surprising fact that marriage also increases the financial burden; actually a larger proportion of the married are in debt and the magnitude of both their present debt and their estimated debt at the end of fourth year is greater.

Part-time employment

The questionnaire results reveal that 35 per cent of students were employed at the time of the survey, three-quarters of them at jobs in which their medical training was used (Table 4.6). Although it is possible that not *all* of these students were employed because of financial necessity, it is certain that the pressure of meeting expenses was the principal motive in most instances.

Two tax-supported schools "forbid" medical students to undertake part-time employment at any time during the active school year (Table 4.7). A few permit part-time employment only after completion of the first year in medical school; about two-fifths of the medical schools permit part-time employment dependent upon academic standing; and an equal proportion impose no restrictions.

It was agreed at the Institute that most students today are finding it more difficult to meet the costs of their medical education than did students five years ago. Some participants felt that part-time employment as a means of meeting annual expenses is a wasteful and unsatisfactory solution to the students' problem, but that expanded loan facilities seem to offer a desirable solution.[1]

Financial aid

The various types of financial aid offered students by the medical schools are summarized in Table 4.8. Special attention was directed in the pre-Institute re-

TABLE 4.7

MEDICAL SCHOOL POLICIES ON STUDENT EMPLOYMENT

(Participants group; multiple response)

Policy on student employment	% of schools commenting on policy		
	Tax supported	Private	Total
Forbidden	5	2	3
Permitted dependent on academic standing	44	42	43
Permitted only after first year	21	13	16
Permitted only in medical school or hospital facilities	7	6	7
No restrictions	42	40	41
Other	16	27	22
No response	2	0	1
Total N	(43)	(48)	(91)

TABLE 4.8

TYPES OF FINANCIAL AID AVAILABLE TO MEDICAL STUDENTS

(Participants group; multiple response)

Type of financial aid	% of schools commenting on availability		
	Tax supported	Private	Total
School loan funds	91	81	86
Outside loan funds	72	75	74
Tuition scholarships	44	56	51
Full-expense scholarships	19	10	14
Part-time jobs in medical school	74	71	73
Part-time jobs outside medical school	56	54	55
Other	23	19	21
No response	0	4	2
Total N	(43)	(48)	(91)

[1] Note that this is faculty and not student opinion. Studies have repeatedly shown that students who are employed part time maintain average grades as high as those of other students, and further that they participate *more* in extracurricular activity than do students who do not contribute to their own support. [ED.]

TABLE 4.9

AVERAGE AMOUNTS LOANED TO MEDICAL STUDENTS DURING 1956–57

(Participants group)

Region†	Tax-supported schools			Privately supported schools		
	Amt. loaned	No response N	N	Amt. loaned	No response N	N
North East	$10,170	(1)	(5)	$ 15,270	(2)	(19)
South	18,212	(4)	(15)	14,203	(0)	(13)
North Central	25,181	(0)	(15)	15,290	(0)	(0)
West	25,812	(0)	(4)	100,000*	(0)	(3)
Canada	9,319	(0)	(4)	67,378	(1)	(4)

* Over $100,000.

† It should be noted that of the total N of 92 schools, 1 school (Puerto Rico) was omitted from some of the analyses. The average amount loaned by all schools responding is $20,381.

search to the matter of student loans, and it is evident that most, but not all, medical schools have *school* loan funds from which students may borrow. There is a gradually increasing frequency of loans as students progress from the first to the fourth year of medical school. The average amount loaned to students per year per school is $20,381 (Table 4.9); interest rates are shown in Appendix Table A.15. Approximately 40 per cent of medical schools said they were unable to meet all the requests by their students for loans (Table 4.10), and these schools estimate that the additional amounts needed to enable them to meet all loan requirements would range from $20,000 to over $100,000 annually. Twelve per cent of students signified they had requested loans from the school's student loan service and the loans were granted; two per cent indicated their requests for loans were refused (Appendix Table A.10).

TABLE 4.10

ADEQUACY OF SCHOOL LOAN FUNDS

(Participants group)

Response	% of schools citing ability to meet all student requests for loans		
	Tax supported	Private	Total
Yes	58	42	49
No	35	48	42
No response	7	10	9
Total N	(43)	(48)	(91)

Considerable comment was directed to the observed reticence of students toward taking out loans to meet the expenses of their education. The reticence was judged to arise from:

1. The tendency to take the short view, allowing the shadow of indebtedness to obscure the many valuable educational opportunities to which they could devote their full energies at this most important stage of their preparation for a medical career.
2. A natural reluctance to borrow, based on their social and cultural heritage.
3. Embarrassment caused by the revelation of their financial inadequacies in order to procure the needed loan.
4. Special embarrassment on the part of married students, who may feel that the administration disapproves of medical student marriage and would therefore react unsympathetically to the loan request.

In reviewing various approaches that have been made to provide loan funds for financially embarrassed students, the following comments from Institute discussion groups merit emphasis:

1. Loan funds are most effective when not specifically related to high scholastic achievement. The difficulties imposed by financial problems on the education of students in the middle and lower thirds of the class are at least as serious to the future effectiveness of these students as similar problems would be to the superior students.
2. More generous policies governing student loans should be encouraged. Examples of such policies include one in which the institution makes loans based only on the financial need of the student and for which no interest is charged until after graduation. No attempt is made at collection until the recipient has completed military service and has an opportunity for an additional five-year period of graduate study. Another instance was cited in which the physician was asked to include in his repayment a bonus appropriate to the felt value of the loan at the time it was made.
3. One state has provided some funds for students by securing research fellowships from the State and County Heart Association. These fellowships carry a stipend of $200 per month during the summer months and $50-75 per month during the school year. This arrangement, however, does not help the student with no interest or talent in research but who may need financial assistance. Furthermore, one discussant felt that the practice of awarding fellowships on the basis of need rather than merit might destroy the prestige value of fellowships.

In view of the participants' approval of expanded loan facilities, and in light of various difficulties encountered in attempting to solicit loan funds from private industry, local and state medical societies, and local and state governments, one group of participant discussants tendered the following proposal, which is quoted directly from the minutes of the meeting:

> . . . that a national revolving loan fund for medical students and interns be established. It should be available to all students on a voluntary basis and without regard to the resources of the individual students. This fund should be self-sustaining so that no element of charity or subsidy should enter into its operation.

Mechanisms for establishment of this fund were discussed and the one most favored was that the Association of American Medical Colleges could act as the repository for such funds and undertake the responsibility for their distribution

TABLE 4.11

MEDICAL STUDENT NEED FOR AID IN HOUSING

(Regular student group)

Response	% of students at Tax-supported schools	Private schools	All schools
Needed aid in securing living quarters	22	31	27
Did not need aid in securing living quarters	78	69	73
Total N	(626)	(756)	(1382)*

* Of the total N of 1391, there were 9 students unclassified.

TABLE 4.12

STUDENT REPORTS OF EXTENT OF SCHOOL'S AID IN SECURING HOUSING

(Regular student group)

Opinion on aid in housing	% of students who needed aid* At tax-supported schools	At private schools	At all schools
School's aid important	35	46	42
School furnished some aid, not important	38	39	39
School furnished no aid	27	15	19
Total N	(136)	(237)	(373)

* Of the 1382 students in the respondent group, 373 students said they did need aid in securing housing when they first came to medical school, 1006 students said they did not, and 3 students did not respond. See Table 4.11.

TABLE 4.13

STUDENT SATISFACTION WITH PRESENT LIVING ARRANGEMENTS

(Regular student group)

Opinion on present living arrangements	% of students at Tax-supported schools	Private schools	All schools
Satisfactory	84	85	85
Not satisfactory	16	15	15
Total N	(626)	(756)	(1382)*

* Of the total N of 1391, there were 9 students unclassified.

TABLE 4.14

SCHOOL OPINION OF PRESENT LIVING ARRANGEMENTS OF MEDICAL STUDENTS

(Participants group)

Opinion on present living arrangements of students	% of schools Tax supported	Private	Total
Satisfactory	39	50	45
Not satisfactory	56	42	48
No response	5	8	7
Total N	(43)	(48)	(91)

and management. The possibility was considered that some of the large foundations who have interest in medical education could be invited to consider this as a project for their support. "The proposal is presented to the Institute at this time with the suggestion that the speediest consideration and implementation of this project be undertaken."

Medical student housing

The results of the pre-Institute questionnaire indicate that schools consider the living arrangements of the medical students to have an important influence on effective studying and satisfactory academic achievement. Almost all medical schools provide aid to students in securing living quarters. However, it is interesting that only 27 per cent of students claim to have needed aid in obtaining housing, and of these students only 42 per cent considered the school's aid to have been important in helping them solve their housing problems (Table 4.11 and 4.12). The small role played by medical school housing aid services may reflect the students' preference for dealing with housing problems on their own, or could conceivably reflect some inadequacy in the services furnished by the school.

Although 85 per cent of students in both tax-supported and private medical schools rated their present living arrangements as satisfactory (Table 4.13), 48 per cent of the schools considered that present living arrangements left much to be desired (Table 4.14)—most frequent criticisms are reported in Table 4.15. Few schools provide dormitories for medical students, and only one of the schools that provide dormitories considers facilities unsatisfactory (Table 4.16). The

TABLE 4.15

SCHOOL OPINION ON REASONS FOR UNSATISFACTORY LIVING CONDITIONS FOR MEDICAL STUDENTS

(Participants group; multiple response)

Reasons for unsatisfactory living conditions	% of schools Tax supported	Private	Total
Too far from school	28	25	26
Substandard facilities	35	21	27
Too noisy	14	8	19
Poor neighborhood surroundings	21	19	20
Other	21	21	21
No response	40	52	46
Total N	(43)	(48)	(91)

TABLE 4.16

SCHOOL OPINION ON DORMITORIES FOR MEDICAL STUDENTS ONLY

(Participants group)

Comment	% of 14 schools with dormitories*	% of 75 schools without dormitories
Dormitories are unsatisfactory	7	..
Dormitories should be available	..	67

* Of the total of 91 schools, 2 did not respond to the question on dormitory availability.

TABLE 4.17

STUDENT OPINION ON MEDICAL SCHOOL DORMITORIES

(Regular student group)

Opinion	% of dormitory dwellers in each class				
	First year	Second year	Third year	Fourth year	All students
Satisfactory	36	30	38	35	35
Unsatisfactory	47	53	55	59	53
No response	17	16	7	6	12
Total N	(96)	(86)	(60)	(66)	(308)

dissatisfaction with existing dormitories is more marked among the students who inhabit them, with 53 per cent commenting unfavorably (Table 4.17).

More than 60 per cent of medical schools that do *not* have dormitories think they *should* have them (Table 4.16). It therefore seems likely that much effort will be spent on raising funds for the construction of new dormitories for medical students. It is interesting to note some of the conflicting comments on housing from the Institute's discussion groups:

1. Housing was discussed briefly with apparent agreement that dormitories are no solution—in part due to increasing numbers of married students, the apparent preference for small group living, and the wish to escape both medical school environment and University regulations inhibiting social-recreational activities.
2. It is generally believed that a dormitory of the undergraduate type, that is, for single students, would be least likely to pay in a medical school environment. Eminently more satisfactory would be apartment units of the garden apartment type. These would allow much more flexibility in use and could either be used as dwellings for medical students and their families or for bachelor apartments for more than one student. It was also recommended that it might be a good idea for married medical students to live with married students in other disciplines, such as law, engineering, etc., in order that the medical students and their wives might get some idea of the viewpoints of other people toward medicine and physicians. Another reason advanced for having medical students live with students in other fields of endeavor is that there sometimes develops keen rivalry between medical students which does not promote congeniality between their families if they live in close proximity.
3. The newly constructed dormitory facilities provided for medical students at one of the privately supported schools are not fully occupied. They do not have space for married students, however, and it appears that the medical fraternities are currently more popular for single students than the new dormitory. State schools are increasingly attempting to provide housing for all students. The criticism was expressed that this may mean too large an expenditure of state money for items that should be the student's responsibility, to the sacrifice of faculty salaries and other fundamental support for education. The idea was advanced that third and fourth-year men might be provided in-house hospital facilities, which would solve their housing problems and, perhaps, increase their usefulness to the hospital. It was agreed that such facilities are not possible within most of the present medical school arrangements.
4. There was general agreement among the Committee that housing medical students together for study and play was beneficial. It was supported by the expressed desire of students in the 1957 questionnaire analysis. At Western Reserve, medical fraternities do a good job of group housing for medical students. This offers the very important benefit of guidance and education by students in higher classes to those in lower classes. In addition, social life, recreation, and athletic activities all work well in this housing arrangement.

Some of the differences in *emphasis* in the above comments undoubtedly reflect differences in *need* in various areas. A major consideration at all schools that feel the need for improved and expanded housing facilities concerns the growing proportion of married students. In general, dormitory facilities have been designed to accommodate single students only, because of the manifest complications of combining single and married students (particularly those having children) under dormitory conditions. Housing for married students is an acute need at some schools, particularly in view of the fact that single students are much less reluctant than are married students to endure the hardships of the poor neighborhoods and substandard quarters that may be characteristic of the only existing housing facilities.

With the above problems in mind, it is appropriate to examine certain general considerations that emerge from the questionnaire results. The present living arrangements of the students are defined in Tables 4.18 and 4.19.

It should be noted in Table 4.18 that the number of students living in dormitories, rooms off campus, and fraternities declines sharply after the first two years. It is evident that a small proportion of this migration can be accounted for by increased numbers of students living on hospital premises during their junior and senior years. However, the bulk of the change represents a move to apartments, reflecting undoubtedly the increasing frequency of marriage among junior and senior students (Table 4.19). Possibly the move to apartments among un-

TABLE 4.18

TYPES OF RESIDENCE OF MEDICAL STUDENTS IN 1956–57

(Regular student group)

Type of residence	% of students in each class				
	First year	Second year	Third year	Fourth year	All students
Dormitory	16	12	6	6	11
Room, off campus	12	9	5	5	8
Fraternity	11	10	6	4	8
Apartment	51	61	67	69	61
Hospital	1	2	6	9	4
"Other" (includes at home)	9	6	9	6	8
No response	0	0	1	0	*
Total N	(394)	(354)	(324)	(316)	(1388)†

* Less than .5 per cent.

† Of the total N of 1391, 3 students were unclassified as to year.

TABLE 4.19

LIVING ARRANGEMENTS OF MEDICAL STUDENTS IN 1956–57

(Regular student group)

Living arrangement	% of students in each class				
	First year	Second year	Third year	Fourth year	All students
With parents	16	14	17	13	15
With spouse	26	35	45	51	39
With relatives	1	2	2	*	1
With other medical students	40	37	26	24	32
With friends	3	3	2	3	3
Alone	13	8	8	9	10
Other or more than one of above	1	0	*	1	*
No response	*	1	0	*	*
Total N	(394)	(354)	(324)	(316)	(1388)†

* Less than .5 per cent.

† Of the total N of 1391, 3 students were unclassified as to year.

TABLE 4.20

SCHOOL PREFERENCES FOR MEDICAL STUDENT LIVING ARRANGEMENTS

(Participants group)

Student living arrangement	% of schools citing preference		
	Tax supported	Private	Total
Living among other medical students	72	67	69
Living among general university students	21	29	25
Living alone	7	4	6
Total N	(43)	(48)	(91)

TABLE 4.21

STUDENT PREFERENCES FOR THEIR LIVING ARRANGEMENTS

(Regular student group)

Preferred student living arrangement	% of unmarried students*
Living among other medical students	67
Living among general university students	9
Living alone	16
No response	9
Total N	(831)

* Including engaged, divorced, widowed, separated, and single.

married students indicates a desire to escape the medical school environment and to spend off-duty hours with a small group of chosen friends.

In the pre-Institute research, participants were asked this question: If convenience and cost were equivalent, which of the following would you prefer for your *single* medical students: (a) living among other medical students, (b) living among general University students, (c) living alone? (The answers are summarized in Table 4.20.)

It can be seen that although a majority of schools favor the idea of single students living among other medical students, a substantial number favor having medical students live among general University students. In response to an identical question, the single students themselves distributed their replies as shown in Table 4.21.

TABLE 4.22

STUDENT OPINION ON THE INFLUENCE OF DORMITORY OR FRATERNITY LIFE ON STUDYING

(Regular student group)

Opinion on effect of group living	% of students in each class				
	First year	Second year	Third year	Fourth year	All students
Increases effectiveness of studying	21	23	23	22	22
Decreases effectiveness of studying	18	25	18	20	20
Has no influence on effectiveness of studying	17	18	19	21	19
Do not know	29	22	27	27	26
No response	14	11	12	11	12
Total N	(394)	(354)	(324)	(316)	(1388)*

* Of the total N of 1391, 3 students were not classified as to year.

Examination of Table 4.22 reveals that there is fairly even division of opinion among medical students as to how the close association with other students in a dormitory or fraternity house influences the effectiveness of studying. Neither is there any trend of changing opinion as students progress from their freshman to their senior years.

In summary it might be said that although students are relatively content with their present living conditions, the majority of medical school administrations believe expansion and improvement of medical student housing to be desirable and necessary. In planning any housing program, it is clear that the high proportion of married students, over half of whom have children, must be carefully

considered with respect to the kind of housing to be provided. Then, too, cognizance should be taken of student opinion as to what constitutes desirable housing if the medical school is to avoid costly construction of facilities that fail to meet student needs and thus become liabilities because of incomplete occupancy.

Medical student recreation

It is well recognized that modern medical education and its attendant problems make increasing demands upon the student's waking hours. The sheer bulk of recorded medical knowledge, the irresponsible hydra of current medical literature, the necessity for part-time employment to meet increased financial burdens, and the inevitable chores of the "homemaker," as represented by the 40 per cent of students who are married, are all factors competing for the student's physical, emotional, and intellectual energies; to accommodate them he must curtail certain of his other activities. Both the student and participants questionnaires dealt briefly with the somewhat vaguely defined area of recreation, in an attempt to find out whether today's medical student is meeting the challenge of his demanding medical educational environment by seriously reducing the activities that normally would provide physical fitness, emotional and intellectual diversion, and a broadening of his general cultural background.

TABLE 4.23

STUDENT REPORTS OF AMOUNT OF TIME SPENT IN ATHLETICS DURING THE SCHOOL YEAR

(Regular student group)

Time spent in athletics	% of students
10 hours or more per week	1
5–9 hours per week	8
2–4 hours per week	24
Less than 2 hours per week	45
None	22
Total N	(1391)

TABLE 4.24

STUDENT REPORTS OF THE MEDICAL SCHOOL'S FACILITIES FOR ATHLETIC RECREATION

(Regular student group)

Medical school provides	% of students
Athletic facilities	43
No athletic facilities	56
Do not know	*
No response	1
Total N	(1391)

* Less than .5 per cent response.

Athletics

The mean age of the medical student population is 25 years, an age at which athletic prowess is near its peak. The amount of time spent in athletic participation by this predominantly male group, in their athletic prime, is shown in Table 4.23. It is striking to note that almost a quarter of the students spend no time on athletics during the school year and that an additional 45 per cent spend less than 2 hours per week. A contributing cause must certainly be lack of readily available athletic facilities, since Table 4.24 shows that over 50 per cent of the students claim their medical schools provide no athletic facilities for students. It is true that affiliated university facilities are theoretically available to medical students, but these are often at a considerable distance from the medical school. Only 15 per cent of medical students say they use university facilities. The most frequently cited location of athletic activities is outside the medical school and the university (Table 4.25).

TABLE 4.25

STUDENT REPORTS ON LOCATION OF ATHLETIC FACILITIES

(Regular student group; multiple response)

Location of athletic activities	% of students
In the medical school	17
In the university but outside the medical school	15
Outside the university	39
No participation	18
No response	5
Total N	(1391)

TABLE 4.26

TIME SPENT BY MEDICAL STUDENTS IN NONATHLETIC RECREATIONAL ACTIVITIES

(Regular student group)

Hours per week in non-athletic recreation	% of students
Over 20 hours	10
10–20 hours	37
5–9 hours	35
Less than 5 hours	17
None	1
No response	*
Total N	(1391)

* Less than .5 per cent.

General recreational activity

The students' estimate of the number of hours per week devoted to nonathletic recreational activities is summarized in Table 4.26. It is notable that over half the students claim to spend less than 10 hours per week in such recreation. Although little stress should be put on the actual figures in the table because "recreation" is so ill-defined, it is certain that medical students as a group spend relatively little time at the "techniques for relaxation," as one participant defined recreation. It is possible that lack of conveniently available facilities is an important causal factor. Table 4.27, from the results of the participants questionnaire, indicates that, with the exception of a student lounge, standard recreational facilities (television, piano, game room) are provided by less than half of the medical schools. Another factor of possible importance is faculty attitude. Table 4.28 combines participant and student response on the extent to which the medical school faculties encourage students' regular participation in recreational activity. It is evident that although half the schools consider that they actively endorse student recreation, only a quarter of the students are aware of this salutary faculty attitude. However, it would be incorrect to assume that the remaining 75 per cent of students consider the faculty hostile to the concept of regular student participation in recreation, because when students were questioned as to why they do not spend more time at recreation, only 2 per cent gave "expressed faculty disapproval" or "possible faculty misinterpretation" as their

TABLE 4.27

FACILITIES FOR SOCIAL ACTIVITIES PROVIDED FOR THE STUDENTS BY THE MEDICAL SCHOOL

(Participants group)

Facilities provided	% of schools
Television	34
Piano	42
Lounge	77
Game room	39
Organized social events	57
Other	12
No response	7
Total N	(92)

TABLE 4.28

SCHOOL ATTITUDE TOWARD REGULAR PARTICIPATION BY MEDICAL STUDENTS IN RECREATIONAL ACTIVITIES

(Participants and regular student groups)

School attitude on recreation	% of each group	
	Schools	Students
Encourages	54	26
Does not encourage	38	35
Do not know	0	38
No response	8	1
Total N	(92)	(1391)

TABLE 4.29

STUDENT REASONS FOR NOT EXPANDING TIME SPENT IN RECREATIONAL ACTIVITIES

(Regular student group; multiple response)

Reasons for not increasing recreation	% of students
Present facilities adequate	24
Pressure of school work	41
Lack of interest	5
Expressed faculty disapproval	*
Possible faculty misinterpretation	2
Family obligations	14
Employment	11
Other	3
Would devote more time to recreation	38
No response	1
Total N	(1391)

* Less than .5 per cent response.

TABLE 4.30

NONMEDICAL BOOKS READ BY MEDICAL STUDENTS DURING 1956–57

(Regular student group)

Number of nonmedical books read	% of students
10 or more	12
5–9	13
2–4	32
Less than 2	25
None	18
No response	*
Total N	(1391)

* Less than .5 per cent.

reason (Table 4.29). The one conclusion which emerges clearly is that if the faculties wish to give enthusiastic endorsement to student recreational activity, they must be more articulate in communicating their endorsement to the entire student body.

Nonmedical reading

The physician hopes still to be regarded as a broadly educated man, and the struggle to keep this desirable reputation intact and deserved is a hard one. The seriousness of the threat to the "broadly educated physician" is emphasized in Table 4.30 from the results of the student questionnaire. Over 40 per cent of today's medical students read less than 2 nonmedical books per year; 75 per cent read less than four! These data need no comment, but it should be pointed out that less than 10 per cent of all American medical schools provide a nonmedical library facility for their students (see Table A.24 in Appendix A). It should not be surprising if students concluded that the medical faculties consider the students' reading of nonmedical books to be of little importance.

Value of recreation

One final and penetrating question was asked of both students and Institute participants: Would the student's performance at medical school be benefited

TABLE 4.31

OPINION ON EFFECT OF INCREASING TIME SPENT BY MEDICAL STUDENTS IN RECREATIONAL ACTIVITIES

(Participants and regular student groups)

Effect of more recreation	% of each group	
	Schools	Students
Student performance would be benefited	25	36
Student performance would not be benefited	74	64
No response	1	1
Total N	(92)	(1391)

by an increase in time spent on recreational activities? There was substantial concurrence of student and participant opinion, as indicated in Table 4.31, with the majority of both groups not in favor of increased time spent in recreation. However, this is not to say that existing recreation would not be more effective if recreational facilities were expanded and improved.

Some highlights from the recorded reports of the discussion groups indicate the tenor of the deliberations at the Institute. In one group it was agreed that students should have an opportunity to follow their individual bent in recreational matters. It was further realized that mere allowing of time off did not constitute an adequate recognition of the problems of recreation, since anxious or compulsive students were quite likely to use that time in studying medical school subjects. The question of organized social and recreation facilities was considered. It was felt that each school should have facilities to which students have easy access—gymnasium, lounge, libraries, musical albums, and other devices. It was further recommended that some type of group social life be arranged, but it should be on a voluntary basis with no compulsion. It was accepted that one *cannot legislate recreation*. The group felt that within the framework of some moderately organized form of social life for medical students, the faculty would have an opportunity to establish better student-teacher relations.

Another group emphasized the athletic aspects. It was suggested that facilities for some type of contact sport might be particularly helpful and valuable in that the student could work off some of his frustrations through vigorous participation in an athletic endeavor. It was further generally agreed that any new housing facilities for use by medical students and their families should include recreational facilities, not only for the medical student but for his family as well. The discussion of leisure time brought out the fact that faculties should not create an atmosphere of disapproval of recreation. The mere presence of a tennis court is not enough; students must be made to feel free to use it. There was difference of opinion as to the necessity for physical exercise, but most seemed to feel it desirable. The faculty often sets a bad example for the students by taking no time off for recreation themselves.

Perhaps the "last word" on the subject of recreation came from the Institute round table which concluded that there are many forms of student recreation of which the faculty cannot be officially cognizant!

Health services for medical students

No one will quarrel with the argument that optimal performance as a medical student will be impossible in the face of health problems. The problems may be

TABLE 4.32

OFFICIAL PROVISION OF HEALTH SERVICES FOR MEDICAL STUDENTS

(Participants group)

Provision of health services	Number of medical schools (N = 91)				
	North East	South	North Central	West	Canada
Yes	22	27	24	7	7
No	1	1	0	0	1
No response	1	0	0	0	0
Total N	24	28	24	7	8

acute or chronic, major or minor, real or imagined. They may be frankly emotional, both in the form of recognized psychiatric entities or in the more general realm of difficulties in interpersonal relations or over-concern about personal problems (religious, domestic, health of spouse, parents, etc.). Acceptance of the importance of health problems as a significant noncurricular determinant of the medical student's performance is attested by the provision of student health services by 87 of 90 medical schools responding to the questionnaire (Table 4.32). However, a closer scrutiny of the health services provided by different schools reveals that there are wide differences in the extent of coverage and that there are fundamental differences in the schools' concepts of the role the health service should play in the lives of the medical students it serves.

A large amount of data describing existing medical student health services was collected through the questionnaire sent out to Institute participants. For most of the material that follows, the Association of American Medical Colleges

TABLE 4.33

DIFFERENCES AMONG MEDICAL STUDENT HEALTH SERVICES

(Participants group; multiple response)

Characteristics of health services		Number of schools (N=91)
1. *Manner in which health services are provided*		
Part of a University Student Health Service		53
Provided as a Medical School Service		32
Furnished in conjunction with a hospital Health Service		13
2. *Extent of group covered by health service*		
University Students at large		49
Medical Students only		16
Medical Students and their immediate families		11
Medical Students and other groups (student nurses, dental students, pharmacy students, faculty, employees)		27
3. *Location of health service with respect to the medical school*		
Immediate school area		53
Sufficiently distant to require transportation		8
4. *Health insurance plans*		
Have plan		55
Blue Cross-Blue Shield	16	
Other commercial plan	17	
University-sponsored plan	36	
Optional	18	
Compulsory	36	
Coverage of professional fees as well as hospital charges	38	
Hospital charges only	21	
Insurance plan considered adequate	49	
Insurance plan considered inadequate	12	
Do not have insurance plan		30
5. *Availability of ordinary (nonemergency) health facilities*		
Only during certain hours		59
At any time		28
6. *Types of health service available*		
Office treatment of routine illnesses only		21
Comprehensive medical care		67
Attention to stress components of somatic illness		54
Counseling service for situational and personality problems		66
Services of specialists		64
Infirmary and hospital care		75
Health supervision		57
7. *Items included when health supervision provided*		
Entrance medical exam		81
Health and personal adjustment		27
Protective immunization		78
Tuberculosis detection and control		79
Environmental sanitation		23
8. *Records indicating visits by medical students for emotional and psychiatric problems*		
Do keep such records		35
Do not keep such records		52
9. *Provision of psychiatric counseling as part of the student health service*		
Psychiatric counseling provided		51
Psychiatric counseling not provided		35
10. *Accessibility to the dean's office of psychiatric findings*		
Only with student's permission		45
Without student's permission		40

has prepared pertinent breakdowns (available on request) as to tax-supported versus privately supported schools, geographic region, and the location of the medical school with respect to a parent or affiliated university. The summarized data in Table 4.33 were selected in order to emphasize the major areas in which variations among health services occur. Careful evaluation of the variety of existing services should make possible the evolution of a more uniform pattern for health facilities—one that incorporates the best features of the many varying plans and eliminates services that provide only token benefits to the students. Serious consideration should be given to extending health services to immediate families of married medical students.

It seems clear that definition of the role of the student health service in student counseling should be considered. To which areas should counseling be confined: health problems only, personality problems, psychiatric problems, premarital and marital problems? With special reference to emotional and psychiatric problems, the matter of adequate and complete records should receive thoughtful consideration. Is it desirable, or even defensible, that a school should not know what proportion of student health service visits are for primarily emotional and psychiatric problems? Is it desirable, or even defensible, that psychiatric records should be available to the dean's office without the student's permission? What effect would such a policy have on the freedom with which students seek needed help from the student health service when beset by problems rquiring psychiatric care?

A final consideration is the role of the student health service in *teaching* medical students, with emphasis on teaching by example rather than on didactic instruction. It is inevitable that students with the orientation implicit in medical school will have a critical awareness of the medical care they receive for their own health needs. The students' contacts with the health service are learning experiences for them, whether or not the faculty considers them as such. If the quality of their medical care is poor or if the attitude of their physicians is cursory, a disillusioning learning experience would be created—one for which the school administration is directly responsible. When the Institute participants were questioned as to the importance of the student health service in teaching medical students at their schools, well over half replied that there was almost no importance in teaching (Table 4.34). Accordingly, it may be submitted that the medical schools are not at present fully exploiting the opportunity for teaching inherently afforded in the operation of their student health services.

TABLE 4.34

SCHOOL REPORTS ON THE IMPORTANCE OF THE STUDENT HEALTH SERVICE IN TEACHING MEDICAL STUDENTS

(Participants group)

Role of health service	Number of schools (N=91)
An important teaching role	8
A minor teaching role	17
Almost no importance in teaching	57
No response	9

TABLE 4.35

HEALTH SERVICE VISITS BY MEDICAL STUDENTS FOR EMOTIONAL AND PSYCHIATRIC PROBLEMS

(Participants group)

Type of school	% of all health service visits for emotional or psychiatric problems		Number of schools	
	Average estimate	Range of estimates	N*	No response
Schools keeping records of such visits	13	5–28	(35)	(10)
Schools not keeping records of such visits	15	5–35	(52)	(13)

* There were 4 of the 91 schools not indicating whether records were kept on health service visits for emotional or psychiatric problems.

HELPING STUDENTS MEET PROBLEMS

Medical students labor under mighty and various pressures. There are the curricular pressures—those tensions related to absorbing the enormous bulk of medical knowledge, doing well in examinations, obtaining internship appointments, and the like. And, as we have seen in the preceding section, there are the more subtle noncurricular pressures—those related to financial stress, unsatisfactory living conditions, a life lacking a proper balance of recreational pursuits. There are anxieties occasioned by personal illness or illness and distress of parents or wives or children. In the midst of it all, there is the steady chipping away of the students' romanticized premedical illusions about medical school and doctors, as well as the disturbing awareness of their own changing motivations and goals.

Counseling

It is not surprising that medical student health services across the country estimate that about 15 per cent of all visits are primarily for emotional and psychiatric problems (Table 4.35). There is a manifest need for guidance and counseling of medical students, but the replies to the pre-Institute questionnaires show confusion and conflicting ideas on the part of both students and medical school representatives in this important area.

Definition of counseling

It is important to emphasize that in the questionnaire and in most of the Institute's discussions the term "counseling" was used in a broad context to include providing the student with advice, guidance, counsel, and emotional support. The term was not generally intended to imply "professional counseling" as it is more sharply defined by Dr. Milton E. Hahn in the second section of the following chapter, although the value of such professional counseling within the broader concept of counseling was enthusiastically endorsed.

Types of problems

There are, of course, no limits to the kinds of problems that rightly fall within the province of student counseling. It is generally acknowledged that student

counseling does not include formal psychotherapy for well-defined psychiatric entities, but with this major exception the domain of student counseling is a broad one. The following are a few of the more important categories of problems with which students frequently need help:

Academic: Poor grades, substitutions in curriculum, choice of electives; also related personal emotional and attitudinal problems.
Personal: Problems with parents, in-laws, spouse, children, siblings, interpersonal difficulties with faculty or classmates, religious quandaries.
Financial: Needs for scholarship increases, loans, part-time employment, fellowships.
Health: Generally because of concern over health of family and friends (personal health usually covered by student health service).
Career choice: General considerations, may also extend to internships, specialty boards.[2]

Major approaches to counseling

Innumerable counseling systems have been devised in an effort to meet the many and varied needs of medical students. Most of them fall into one or another of the following major categories:

A. *Laissez-faire* (essentially *no* system), sometimes referred to as the "sink or swim" system, motivated by the faculty attitude that students should be left to work out their own problems and that counseling slows maturation and fosters undesirable overdependence.
B. *Single faculty member* who is counselor to *all* students.
C. *Well-defined faculty advisory system,* similar to the plan described by Dr. Dana L. Farnsworth (see Chapter 5, Section A). Under this scheme there are many elements that may be varied, for example:
   1. Assignment to counselors
      a. arbitrary by faculty
      b. students submit preference, then assigned
      c. free choice by students
   2. Frequency of student counselor contacts
      a. only when in trouble
      b. regularly, by schedule (once a year, once each trimester, sometimes as often as once each week)
   3. Frequency of change of counselor
      a. never
      b. every year, every two years
      c. ad lib
D. *Professional counseling,* either alone or in combination with other systems (see Dr. Hahn's discussion in Chapter 5, Section B).
E. *Senior student system,* generally limited to assignment of freshmen to seniors.
F. *Student-faculty committees,* wherein a faculty committee on student problems meets with a student council. Such a system concerns itself chiefly with curricular, administrative, and disciplinary matters and touches on personal problems in only the most general terms.

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[2] Because of the often-noted tendency of some faculty members to lure the medical student into their own specialty, the professional counselor (as defined by Dr. Hahn) can serve an important role here in helping the student understand his interests in relation to the wide variety of medical specialties from which to choose. The faculty advisory role with respect to career choice might best be confined to information giving. [Ed.]

TABLE 4.36

MEDICAL SCHOOL OPINION ON FACULTY ADVISORY SYSTEMS

(Participants group)

Opinion on present advisory program	% of schools with program
Satisfied	22
Not satisfied	68
No response	10
Total N	(31)*

* Of the 92 schools, 59 do not have faculty advisory systems and 2 did not indicate whether they do or not.

TABLE 4.37

SCHOOL VS. STUDENT OPINION ON ADEQUACY OF COUNSELING AND GUIDANCE FACILITIES AT MEDICAL SCHOOLS

(Participants and regular student groups)

Opinion on counseling facilities	% of each group	
	Schools	Students
Exceptionally helpful to student	12	6
Provide a satisfactory service	33	25
Some improvement in service would be desirable	46	28
Generally ineffective and inadequate	10	19
There are no such facilities	0	21
Total N	(92)	(1391)

Questionnaire results

It is now appropriate to turn to the results of the questionnaires, chiefly to point up some of the interesting discrepancies between student and school opinion on matters concerned with counseling. It was apparent from the replies of Institute participants that all schools consider they have some sort of counseling system for their students. Thirty-four per cent of schools have a faculty advisory system, but of these only one-quarter are considered satisfactory by the participants who replied to the questionnaire (Table 4.36). Despite the general dissatisfaction with existing faculty counseling programs, half of the schools that do not have a faculty advisory system believe such a program would be valuable.

When participants and students were asked to assess the adequacy of existing counseling and guidance facilities, the results summarized in Table 4.37 were obtained. These data deserve careful scrutiny. It is evident that only a small minority of both schools and students claim real success for existing counseling programs. Furthermore, it is apparent that the students are considerably less enthusiastic than the faculty about the facilities provided to help them grapple with their problems. A striking finding which suggests a serious failure of communication is that one-fifth of all students are apparently unaware of the existence of counseling and guidance facilities at their schools.

TABLE 4.38

SCHOOL VS. STUDENT OPINION ON ADVISERS FOR MEDICAL STUDENTS

(Participants and regular student groups)

Adviser for students	% of schools recommending advisers		% of students choosing advisers	
	Personal problems	Educational problems	Personal problems	Educational problems
Dean	62	54	4	7
Assistant dean (student affairs)	74	75	9	16
Faculty member (adviser)	40	42	6	18
Faculty member (friend)	63	67	16	31
Student health service	61	12	3	*
Psychiatrist (staff)	48	25	4	1
Minister	20	2	9	*
University counseling service	10	9	1	1
Parents	11	4	44	8
Other students	11	20	36	35
Other	8	12	24	9
Total N	(92)	(92)	(1391)	(1391)

* Less than .5 per cent response.

Another comparison of faculty and student opinion is found in Table 4.38, where the participants' recommended advisers for student problems are shown to differ sharply from the students' choices of advisers. The school preference for deans, faculty advisers, members of the student health service, and staff psychiatrists is not shared by the students, who prefer to discuss problem with parents, other students, wives, and friends. The cause of this discrepancy is not apparent from the data, and it is evident that it needs to be found, since there can be little hope that faculty counseling programs will flourish in a climate characterized by student indifference or rejection.

TABLE 4.39

SCHOOL VS. STUDENT OPINION ON A SINGLE FACULTY ADVISER FOR ALL MEDICAL STUDENTS

(Participants and regular student groups)

Opinion on single adviser	% of each group	
	School	Students
Worth while	27	21
Not worth while	71	77
No response	2	1
Total N	(92)	(1391)

TABLE 4.40

SCHOOL VS. STUDENT OPINION ON USING FOURTH-YEAR MEDICAL STUDENTS AS ADVISERS TO FIRST-YEAR STUDENTS

(Participants and regular student groups)

Opinion on 4th year students as advisers	% of each group	
	Schools	Students
Worth while	28	57
Not worth while	68	41
No response	4	2
Total N	(92)	(1391)

There is striking agreement (Table 4.39) of school and student opinion as to the undesirability of having one person on the faculty designated as adviser to all students. Less agreement is found (Table 4.40) on the desirability of assigning freshman medical students to senior student advisers. These data are consistent with the students' expressed preference (Table 4.38) to take their problems to "other students" rather than to faculty members. However, it should be emphasized that the wide variety of problems the student faces may indicate a need for the coexistence of senior student and faculty adviser programs rather than a single program intended to meet all needs.

It is possible that some of the lack of enthusiasm that students display for taking their problems to faculty members stems from uncertainty over the relationship of the faculty member to the dean's office. It has been suggested that students believe faculty members might feel obliged to apprise the school administration of serious problems divulged by the students, or that teachers might at least find it difficult to keep silent about such problems if questioned by the dean's office in an effort to investigate poor academic performance or unusual behavior. Such a student attitude is understandable, especially in light of the revelation that in nearly half the schools the dean's office has access to students' psychiatric records without the students' permission (Table 4.33).

Students and participants were asked what they considered should be the adviser's disciplinary responsibilities to the dean's office. The results, shown in Table 4.41, indicate an awareness by both respondent groups of the problems in this area, but they suggest that the students are considerably more concerned than the schools that there be a clearly defined separation of advisory and disciplinary functions. It should probably be emphasized that equally important to a well-defined faculty position on the above matter is the unequivocal communi-

TABLE 4.41

SCHOOL VS. STUDENT OPINION ON AN ADVISER'S DISCIPLINARY RESPONSIBILITIES TO THE DEAN'S OFFICE

(Participants and regular student groups)

Opinion on disciplinary responsibility	% of each group	
	Schools	Students
He should be relieved of all disciplinary functions so as to maximize his value as a counselor	46	67
His disciplinary functions should be restricted to reporting serious breaches to the dean	37	17
The adviser should represent the dean in all his dealings with his advisees, including disciplinary ones	10	13
No response	7	3
Total N	(92)	(1391)

cation of this position to all the students. Otherwise, vague reservations and reticence may be expected to continue as barriers against a spontaneous and effective student-faculty relationship in the counseling area.[3]

Institute discussion

Against the background of questionnaire material described above and tabulated in Appendix A, Dr. Farnsworth and Dr. Hahn addressed the Institute on certain major mechanisms and philosophies of student counseling (see Chapter 5). Thereafter, the Institute participants broke up into 12 small groups for several hours of thoughtful discussion of the noncurricular problems that face medical students and of the counseling problems that face faculties.

Aims of counseling

In one discussion group it was suggested "that a significant part of the stress of medical study may result from attempts at molding the student into the image of the ideal physician with attitudes, values, and motives of a degree and nature different from society in general." In another discussion group, Dr. Farnsworth emphasized that whereas undergraduate and graduate students perhaps have an equal number of problems, the troubles and disquietude of the graduate student tend to be less temporary and of greater magnitude.

There was unanimous agreement that student counseling is an integral part of an enlightened educational program, that counseling as presently provided in American medical schools is generally inadequate, and that the whole problem of counseling deserves thoughtful reappraisal at this time.

A variety of points of view on the aims of counseling emerge from a perusal of the deliberations of the different discussion groups. Some of these key considerations are listed below.

[3] It is significant that the essentiality of divorcing counseling from disciplinary functions was established in midwestern college and university circles nearly a quarter-century ago. Differences between student and faculty opinion may reflect in part a culture lag, in part the tendency of medical schools to exist as isolated independent units in the university community. [Ed.]

A student counseling system should:

1. Make the most effective possible use of the human material available.
2. Sort out the unfit students whose continuance in school represents a waste of effort and finances.
3. Constitute an educational rather than a problem-solving experience. The system should avoid becoming "clinical in appearance." Educational values, both known and potential, cannot be fully realized if a formal counseling system is structured primarily on academic difficulties of students. A counseling system should be considerably more than a salvage operation. It should be directed toward helping all students to become better physicians and indirectly toward assisting all teachers to become better teachers. In general the counseling system should improve the total environment of the institution.
4. Assure the counselee in all instances that his discussions with the counselor will always be held in strict and inviolable confidence.

A counseling system should avoid:

1. Obviating all anxieties, since this tends to weaken the moral fiber of the students. It is the irritated oyster that produces the pearl.
2. Development of further anxiety in the student that might accompany a protective or suspectedly over-protective system.
3. Undue encouragement of excessive and prolonged dependency by the student.
4. Lessening faculty and student interest in and concern for the necessary and highly important day-by-day counseling that is an inherent part of effective teaching-learning situations.
5. Establishing a premium on the development of a continuing, congenial adviser-student relationship. This could result in conscientious advisers pursuing their advisees and creating unwanted, unnecessary circumstances probably harmful to the further growth of adviser and student.
6. Inhibiting the student from seeking guidance and counsel from faculty members selected by himself to satisfy his own needs and desires. The gradual lessening of student-initiated contacts with advisers should not be presumed to be evidence of inadequacies on either the part of student or adviser concerned. Such an occurrence may very likely indicate increasing maturity on the part of the student.

Mechanisms for counseling

In addition to, and in amplification of, the various systems referred to earlier in this section, some discussants at the Institute stressed values to be found in:

1. An active student council that meets regularly with responsible faculty members so that sources of tension can be aired.
2. Departmental advisory luncheon groups where a sympathetic member of the department meets with several students weekly for lunch.
3. Faculty-student luncheons and coffee breaks and mutual lounges and meeting rooms. The importance of mutual dining arrangements was stressed.
4. Orientation courses in medical sociology beginning in the first year and continuing thereafter.
5. Symposia to provide student-faculty discussions of hot issues (curriculum, careers, internships).
6. Maintenance of the natural informal counseling system which it is believed is inherent in effective student-faculty interrelationships.
7. Assignment of each student to two faculty counselors, one each from the basic science and clinical departments.
8. Regular meetings of counselors among themselves to discuss mutual counseling problems, sometimes with a professional counselor present as a consultant.

9. Formal orientation for faculty members with respect to their responsibilities as counselors and training in the appropriate utilization of information that could be made available by psychologists and psychiatrists. The psychologist and psychiatrist, then, would not be the direct source of counsel for most students.

Counseling personnel

As pointed out above, the pre-Institute questionnaire revealed considerable difference of opinion between students and schools as to who constituted the most suitable counselors for students. It will be apparent from the following excerpts on the subject of counseling personnel that differences of opinion and of emphasis existed abundantly among the participants who attended the Institute.

1. An important function of professional counselors should be to act as counselors to the general faculty counselors. There was some discussion that the professional counselor (psychiatrist or psychologist) too often takes the attitude that the student with emotional problems is a professional challenge and should be "saved," rather than recognizing the prime responsibility of the school to drop unfit students.
2. One member of a discussion group expressed concern that independent counselors who are not members of the faculty of medicine might alienate student-teacher relationships.
3. Eligibility for psychiatrists on counseling assignments should be without reference to their clinical discipline. They should neither be "on" or "off" *because* they are psychiatrists, but only because of the factors of time, interest, and talent in general counseling.
4. In considering the high preference expressed by students for taking problems to their parents for counsel, it must be remembered that at some medical schools 50 per cent of the students live at home with their parents.
5. Dr. Robert K. Merton (see Chapter 6) pointed out that because graduate students have already committed themselves to a career it is possible their relationship to faculty advisers might be stronger, perhaps a reflection of the preceptorial function of the advisers. Thus the opportunities for identification are more permanent.
6. To serve as a counselor is an educational and rewarding experience for the faculty participant, but it is suggested that members of the dean's staff should not be utilized in this capacity.
7. Dr. Merton stressed it was important that advisory systems utilize key figures of the medical school faculty and administration; otherwise the system would fall into dilapidation due to lack of prestige.
8. The selection of counselors should take cognizance of the need to represent all faculty areas so that the counselor as a model is representative of the whole.
9. The role of the administrative officials in student counseling was explored. There was feeling that such officials can serve effectively in this area and that there should not be a prohibition of participation by administrative personnel in student counseling. Some members of the group wondered if there might not be reason to encourage involvement of administrative personnel in the hope that it would foster a maturing student realization that individuals in authoritarian positions are humans who can be successfully dealt with as such.

General comments

In spite of the diversity of opinion cited above, there was fair agreement on some points. One recurring theme throughout the discussions was the acknowledgment that counseling took time and talent and therefore deserved appropriate recognition. One of the discussion groups specifically recommended that faculty

members who excel as teachers and counselors should be rewarded with status and elevation of rank commensurate with their contribution.

As for the laissez-faire approach to counseling, the tenor of at least a part of the discussion in one of the groups is conveyed by the following excerpt:

> Some little time and opprobrium were directed toward faculty members of the let-em-sink-or-swim schools who were inclined to consider counseling systems as expressions of softheaded sentimentality. The deleterious effect of one or two strong-minded people of these persuasions was discussed. The consensus of the committee was that faculty individuals of this type needed counseling themselves.

By way of introduction to the following chapter, which reproduces the complete papers given by Dr. Farnsworth and Dr. Hahn at the Institute, the following penetrating commentary from one Institute round table seems particularly apt:

> Counseling depends upon availability (time and place) for communication, disposition of both parties to learn in the experience, but above all upon the counselor's capacity to listen in the role of one whose value to the student lies far less in words of wisdom than in symbols of aspiration. A counselor is effective to the extent that he creates an atmosphere in which the student can hear himself stating his difficulties in the light of his own concept of the counselor's standards and judgment. A good counselor must be a good listener. The interview must not be artificial or synthetic in respect to its setting, its timing, or its meaningfulness to both parties. This further implies a considerable area of free choice by the student of his counselor—as precious as the concept of a patient's free choice of his physician.

CHAPTER 5

Two Approaches to Student Counseling

IF THE DIFFICULT problem of medical student counseling was not neatly solved at the Institute, it was at least exposed to vigorous scrutiny—particularly with respect to its role in helping the student to deal with the noncurricular forces that affect him during his years of professional education. The importance of counseling was acknowledged, its complexities were more sharply defined, and Institute participants were stimulated to increase efforts at their own schools to improve facilities for this important element of modern medical education.

The preceding chapter presents a good deal of factual information from the pre-Institute research on medical students' problems, their sources, and the various facilities provided to help deal with them. That diversity of opinion exists among students and among schools is strikingly evident, but it seems clear that at least some provision for student advisement is considered desirable, no matter what approach (or combination of approaches) to counseling is followed.

This chapter reproduces the papers given by Dr. Dana L. Farnsworth and Dr. Milton E. Hahn at the Institute. Each presents a different, but not necessarily incompatible, framework for a counseling program—the use of teachers as counselors and the use of professional counseling psychologists.

A. Counseling in Medical School via Faculty Advisers

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COUNSELING IN medical school is a difficult subject to discuss unless some of the issues are greatly simplified and the broad paths of progress in medical education kept in mind. The modern medical curriculum, like education itself, is so large and the possible accomplishment of any one student is so small that efforts should be directed toward the development of growth capacity and curiosity, rather than simply toward covering the various subjects. In this discussion I will assume we all agree that every student must master a large amount of factual material in order to have something to think with.

The issue involved, as I see it, is that of developing in each student the desire and capacity to assume responsibility for his own professional development. Furthermore, the peculiar qualities that constitute the ideal physician should be a subject for continual and lifelong scrutiny.

Constant change is desirable in any medical school curriculum, although the rate of change and the frequency of revolutionary changes should not be such as to create low morale and feelings of futility on the part of faculty or students. The more occasions on which students and faculty members can talk with one another about the educational procedures going on around them, the more likely it is that true education will be advanced.

Approoches to student counseling

As we review briefly the increasing complexity of our educational system, we can say, to oversimplify greatly, that a few decades ago most teachers organized material they wished medical students to assimilate and transmitted it in the form of lectures. Suitable pressures, usually by examinations, were exerted on students to see that they learned at least part of this material. The receptivity of the student was considered entirely his own affair.

As the subject matter widened in scope and complexity, it became increasingly difficult for any student to cover a significant portion of the theoretically desirable mass of material, and some selection had to take place. Advisers were appointed to make sure that students did not make catastrophic choices.

As medical school objectives grew more numerous and complex, and as the range of choices to be made by an individual student widened greatly, certain social problems became apparent to those advisers and teachers who had enough personal interest in their students to become aware of their quandaries and their relations with other people. The significance of behavior gradually came to be considered worthy of attention.

Keen observers, whether advisers from the teaching staff or specialized counselors such as the psychologists and psychiatrists, gradually became aware that medical students, often those with high class standing, have severe and sometimes crippling personality problems. These might not interfere with securing good grades, but they often result in inability to develop the somewhat more intangible qualities that determine optimum success in medicine.

Many medical schools are now trying to meet these personality problems in ways compatible with the best principles of medical education. Others are not so sure there is a problem; others believe if there is a problem it is not a legitimate concern of the school. Three possible ways of meeting the personal and noncurricular needs of students may be considered.

One approach to the problem might be labeled "the students should be let alone." According to this viewpoint (and I think many medical students agree with this one), the greatest strength and maturity is to be gained by permitting the student to struggle by himself with the curriculum, the numerous choices to be made, and the uses he is to make of what he has learned. His personal reactions and the residual effect of earlier developmental influences are matters for him to deal with on his own; to aid him in the resolution of his quandaries is to create in him an undesirable dependence. The medical student is a graduate student, a mature man capable of independent judgments and decisons. If he is unable to accept the full responsibility involved in preparing himself to be a physician, he should withdraw from medical school and engage in some other pursuit

or occupation. This is the "sink or swim, don't coddle them" school of thought.

The second approach is that of utilizing professional counselors who are often connected with the university's student counseling center and who have had long graduate training in psychological testing and the various theories and practices of counseling; in some instances such counselors have been appointed to the staff of the medical school. Students may go to the counselor when they feel unable to solve their difficulties by themselves, and he provides help with all kinds of personal quandaries, financial matters, housing problems, reading difficulties, etc., and often aids in securing part-time employment, summer jobs, or internships. Severe emotional problems are referred for psychiatric consultation. Such counselors usually make themselves as familiar as possible with all the resources of the community that may from time to time be needed by medical students, and they of course utilize the wide variety of specialized personnel around the school.

The third method, which is the one I favor, is having the larger portion of counseling done by faculty members. Under this plan it is assumed that teaching and counseling have much in common, even being identical in many instances. Faculty members are concerned not only with the organization and transmission of subject matter, but with the student's reaction to it, his motivation, and his social and emotional growth.

Setting up a faculty advisory system

We don't need to dwell on the first point of view and the case for the professional counselor is discussed by Dr. Milton E. Hahn (see Section B of this chapter), so I will elaborate the third. I will preface my elaboration with the statement that *this plan is designed to imitate, as far as possible, life as it is lived.* There is hardly a person who does not go to someone else from time to time to talk about his troubles, his problems, his opportunities. He does not go to such a person for psychotherapy, hence this type of counseling does not indicate that faculty members must become psychotherapists. He goes to see another person because of a need for someone who perhaps is a little older, or who is experienced in a field in which he is not experienced, who will help him see more objectively than he can by himself the situations that face him.

For greatest effectiveness this system requires a general recognition by the faculty that the need for counseling is worthy of the effort to be expended. I have learned from sad experience that if faculty members do not personally arrive at such a conviction the system is not likely to be successful.

A second prerequisite for this type of counseling is to have a group of faculty members who are vitally interested in medical education and who are also willing to study the interaction between the personality characteristics of each student and the strains involved in learning to be a physician.

The third requirement is to have a small group of persons to whom the teacher-counselors may refer students or to whom they themselves may go for advice when situations arise beyond their areas of competency; I refer to this as a "defense in depth." It is not reasonable to expect a group of faculty counselors

to function with ease and satisfaction unless they can call on specialists when they encounter extremely difficult and involved emotional problems. Faculty members would have too heavy a load of anxiety to carry if they felt they must be responsible for all phases of their students' development, including any severe complications.

Long experience in dealing with students, both undergraduate and graduate, suggests that very few of them want to be told what to do, least of all medical students. Likewise, they do not enjoy being considered only as names in a file or holes in an IBM card (I am quoting actual student opinions). They need some contact with a friendly representative of the school who is interested in them as individuals and who will follow their progress in nonacademic as well as academic pursuits. Students often express a desire to have such a contact with someone who has been in their own position comparatively recently, that is, within the last 10 years or so; they also desire to have personal dealings with more established men who have made some reputation and who form models for emulation or identification in terms of their long-range goals.

Counselors should be chosen from a list of faculty members who have volunteered for this kind of teaching activity and who are willing to make time to take a personal interest in the students assigned to them. In a medical school I believe that not more than five students should be allotted to any one counselor; hence a medical school with an entering class of 100 should have at least 20 faculty members who are interested enough to undertake this responsibility. I am assuming that the major effort of a counseling program should be expended in behalf of the first-year students. After that, students in quandaries should be able to obtain help from the persons in whom they have come to have confidence, perhaps from their first-year counselors if a mutually good relationship has been established and maintained.

Some rotation is desirable, possibly with no one person counseling for more than three or four years consecutively. In the early years of a formal program, the custom might be started of having six or seven counselors retire at the end of each year so there would never be a complete change of counseling personnel. This kind of built-in protection is needed because inevitably some individuals will become counselors who have an ax to grind, or who feel that their particular point of view is all-important, or who become a little fanatic on the subject—a fanatic being defined as a person who redoubles his energy after he has lost sight of his aim. Some effective method is desirable to get people like this out of the counseling system without their losing face and without the rest of the faculty being aware that behind-the-scenes manipulation has gone on.

Preliminary meetings of the counselors, possibly two or three in number, should include discussion of the significance of the system in medical education, the attitude of the counselor to his students, possible ways of achieving frequent natural contacts with students, and what to avoid in counseling relationships.

After the new school year has begun, a series of discussions among the counselors, divided in groups of 8 to 12, may be very helpful, particularly if a group leader is available who has had some previous experience in this kind of counseling. The problems of individual students form excellent bases for such group discussions when suitable precautions are taken to avoid invasion of privacy. It

is desirable that counselors come from a variety of specialties in medicine. If each group contains a psychiatrist who may be called upon when the meaning of unusual behavior needs clarification, so much the better.

The counselor's role

Medical students, like other graduate students, do not want parent substitutes to tell them what to do, but they do like to talk with older persons about such matters as selection of textbooks, the building of personal libraries, opportunities in medicine, advantages and disadvantages of the various specialties, and selection of internships and residencies. After confidence has been established, pressing personal matters that affect the student's life and threaten his effectiveness will be brought up—such matters as financial pressure, fear of failure, illness, getting married while still in medical school, dissatisfaction with certain teachers or departments, and anxiety about relations with parents or others. Students often have difficulty in putting problems such as these into proper perspective to be worked on effectively. They frequently come to a counselor with some neutral or innocuous question to see whether he can be trusted or not.

The true role of the counselor is that of aiding his students to make the most of their medical school experience and to assume responsibility for their own professional development for the rest of their lives. In doing this he must maintain a neat balance between helping a particular student too much, thus promoting or prolonging dependence, and not doing enough, thus leaving the student to feel unwanted or rejected or causing him to miss some of the advantages offered by the medical school.

A counselor gives little direct advice, although he offers factual information when possible. He can express his opinions frankly at times in order that his students may compare them with those of other persons they respect. He helps his students develop objectivity but does not moralize with them. The students know that he is against sin, hence there is no need to preach a sermon against it. At the same time he aids them in seeing various aspects of any issue that may arise, especially when they have made up their own minds too soon. He does not force his attentions on anyone. Some students simply want to be left alone and they should be. They should be allowed to work out their own solutions to whatever issues they encounter. As one student remarked, "I didn't want any help but it was nice to know that it was there if I needed it."

A good counseling system permits the organization of numerous social contacts without too much display of the mechanism involved. Most medical students welcome an occasional opportunity to be in a faculty member's home, and when I say occasional I mean once or twice a year; it might be more at times. The casual observance of the way the home is managed, the books in the library, and the evidences of how any spare time is used all combine to give the new recruit in medicine good basic ideas on what he should try to do—and in some instances what he should avoid!

A counselor encourages his students to understand themselves, which incidentally involves his own self-understanding. In this process personality formation and growth become the subject of intense interest to the student, not simply in

terms of a patient and his experiences, but in terms of the interaction between students and their patients. Thus a better understanding of patients develops simultaneously with progress in self-understanding.

I believe we have made a mistake in the past by teaching psychiatry to students too much in terms of other persons—those behind the brick walls, those in the outpatient department—and not enough in terms of how one's own personality growth can contribute to the understanding of interpersonal relationships, whether normal or disordered.

Such change in emphasis may result in a decided gain for both student and patient, but in a few cases medical students may be made so anxious by the reactions of their patients that they need psychiatric help for themselves. Here is where the "defense in depth" comes in. Conferences between counselors and psychiatrists from the school health service are desirable when this possibility becomes evident. A faculty counselor in a medical school is usually a physician, and physicians are taught to take responsibility for important decisions concerning their patients—even those involving life or death. This necessary assumption of authority when dealing with those who are ill may extend into other fields in which its exercise is less desirable. Counseling is one of them.

A teacher-counselor should, in most instances, refrain from giving "Dutch uncle" talks to his students or generalizing in too sweeping a manner from his own personal experiences. Certainly he should not try to seduce students into his own specialty. Sympathetic listening, occasional judicial questions, and introduction of points of view or possibilities not previously considered will usually stimulate students to improve their own judgments more often than will moralizing or direct advice. Let me emphasize again that at no time is a counselor of the type I am talking about expected to do psychotherapy. He is concerned only with furthering the student's professional and personal growth.

What should be the relationship between these counselors and the representative of the dean's office who is responsible for discipline? It is natural to expect that anyone responsible for discipline in a medical school should desire the cooperation of all faculty members, since discipline is sometimes a difficult and unwelcome task. If counselors are to be of any value to their students they must be able to obtain and keep their confidence, so a counselor of this type simply cannot be an agent of the dean's office. If a form of behavior calling for disciplinary action is reported to the counselor by the student and the counselor then reports it to the dean's office, his usefulness as a counselor is virtually at an end and the whole system comes into disrepute. Does this mean that counselors should not be concerned with discipline? By no means. It does mean that both the counselors and the dean's office staff look upon discipline as something that should be the concern of every student—a philosophy that is encouraged by assuming no man or woman is capable of becoming a physician unless he has learned to control and direct himself. Discipline, self-discipline of this nature, cannot be readily encouraged in any medical school where feelings of mutual antagonism exist between teachers and students.

When faculty members are giving courses, their chief aim is the assimilation of knowledge by their students. As counselors, they are cast in the role of teachers of integrity and character, qualities absolutely essential to a true physician. They

are not agents of the school in any sense other than that of mediator of its curricular offerings and of those policies of personality and character that combine to produce wise and capable physicians. They work toward true discipline but not by methods that encourage resentment, hostility, or rebellion.

Counseling's effect on teachers

The effect on faculty members of a counseling system such as I am describing is fully as important as its effect on the students. Entering students, with their fresh minds, analyze teaching methods and challenge existing customs in a way that individuals who have been involved in routine for a considerable time cannot do. Many of the criticisms made by students in their first year or two are useless, others are impractical, but usually a few have genuine merit. It is important that these criticisms be made and that they be seriously received by experienced persons. From the students, faculty members also learn a great deal about what is going on around the school. This information supplements what they learn through official channels. What the students know about what is going on is not always correct, but if they think it is going on it has just as great an effect on their behavior and attitudes as if it actually were going on. Proper educational methods can hardly be devised if little is known of what is in the students' minds.

One of the more important changes that occur with many teachers who participate in counseling is an increased awareness of how numerous and subtle are the factors that encourage or impede the learning process. Instead of thinking of students as bright or stupid, energetic or lazy, interested or not interested, they come to think in terms of the subtle shading of cause and effect in behavior. They soon become acquainted with the social, economic, and cultural background of the students. They develop skill in discovering the possible meaning of a particular student's cynical attitude, his motivation, his suspicions, or whatever behavior impedes his development. It becomes apparent to teachers in a way not previously realized that the process of developing a good physician requires far more than ascertaining that he is intellectually competent and will cover a certain amount of prescribed educational ground.

The counselors learn that it is very difficult for many students to begin to assume responsibility for their own professional development. Our whole lockstep system of education is designed to "make" students learn. When, as graduate students, they suddenly find themselves in an atmosphere where they are completely on their own, they often find the assumption of responsibility painful. Graduate students who have adjusted to the more adult conditions are frequently shocked at the anti-intellectualism of the undergraduates.

Finally, faculty members who do counseling begin to appreciate far more than ever before how many of the strongly motivating experiences of students have happened to them more or less accidentally. Serendipity is most exciting to us all, but possibly even more so when attempts are made to see that acts of accidental sagacity occur with considerable frequency in the medical school environment.

In a good system, faculty members profit fully as much as the students. The enjoyment derived from pushing back narrow concepts of personality and intel-

lectual growth can easily result in steady elevation of the school's morale. In brief, it is more fun teaching when one knows not only the subject matter but also the persons to whom one is trying to get subject matter across. Teaching methods are sometimes materially improved when an instructor has good spontaneous feedback from some of his students. The brilliant lecture has its place and serves to give all students the opportunity of seeing a disciplined mind in action at the formal level, yet not all formal teaching stimulates thinking or results in learning. Some teachers are so good at bundling learning into neat verbal packages that their students acquire a facility with words in a given field which masquerades temporarily as understanding. Sad disillusionment results when the complex demands of clinical practice necessitate the untying of these verbal packages in a search for knowledge that may be put to immediate practical use.

Safeguarding effectiveness

What are some of the causes of failure in a counseling program? First, artificiality and dependence on too many contrived contacts are liable to defeat the effectiveness of counseling.

Second, the assignment of counselors should be so arranged that students may, if they wish, turn for advice to faculty members who are not their official counselors. Many students will discuss with formally appointed advisers only those things they think they are expected to discuss with them and will turn spontaneously to other individuals for help in personal and often more important matters. Consequently the system should be loose enough to permit counseling by faculty members for students who have not been assigned to them.

Third, many faculty members fail to see the point of what counseling is all about; they may misunderstand its purposes or simply will not work at it. Certain counselors may be too aggressive and force their attentions or points of view on the students. Some faculty members have such rigid and brittle defenses against anxiety that they themselves develop too much anxiety when students present material that reminds them of their own difficulties. Other counselors may try to do psychotherapy when they are not fitted for it or when the in-service training program is inadequate.

The fourth obstacle to success is most important—lack of administrative support within the school. No counseling system of this sort can succeed unless the top administrators work with the counselors, think the program is an asset, and support it and give credit for the effort that is expended. When a counseling program is being initiated, some likely faculty members may be afraid to be known as effective teachers and counselors, since it is a widely held opinion that only good research men get promotions. An occasional promotion based largely on excellent teaching helps dispel such attitudes and of course good teaching and research should go hand-in-hand.

I think it is very worth while if one has a faculty advisory system to reserve a special room at some convenient spot with one person in charge who is in a sense the executive secretary for the counseling group. This room should contain reading material and a reference library and serve as a place for the exchange of

opinions about new developments or ideas in the field. Occasional conferences with persons who have had counseling experience in other institutions can be highly profitable.

In any given school it is futile to start a counseling program without the active support of a group of 20 or 30 persons who are ready to work on the project and who think of it as a means of expanding their own professional capacities as well as the students' professional capacities. And let me reiterate: if the administration does not support the project, don't undertake it!

If such a program does catch on and the group becomes truly interested in it, the resulting intellectual ferment in the medical school becomes a pride and joy to all the people who participate as well as to those who watch it. The best counseling system, in my view, is one that has progressed to the point where the organization is minimal and a very large proportion of the faculty members are in full possession of the counseling attitude.

B. The Invisible Psychologist

BY MILTON E. HAHN

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HOW TO DEAL with student problems has bedeviled the academic world for centuries. In the United States, through an eclectic approach to higher education, we have tended to fragment and so lose part of the growing total effort to help students. Medical schools, along with law, engineering, and others, have been faced with special conditions that have appeared to call for unique solutions. No one solution could fit all institutions in the situations which have emerged.

For much the same reason, we have been unsuccessful in discovering what group in the professional schools should be given primary responsibility for advisement, guidance, counseling, and psychotherapy with students. In various patterns deans, professors, and specialists have tried without universal success. It appears that no one organizational pattern or type of personnel program will ever fit all, or even most, conditions.

Counseling psychology

My assignment at the Institute was to present the possible contributions in counseling medical students that can and have been made by one special group of student personnel workers—the counseling psychologists. This paper is titled *The Invisible Psychologist* because, although much of the personnel work now being done with premedical and medical students in numerous institutions is the work of counseling psychologists, we remain somewhat anonymous.

In the American Psychological Association the Division of Counseling Psychology is one of the three largest groups, along with industrial psychology and clinical psychology. The specialty represented is the psychology of the normal.

Its relatively unique skill is the assessment of human traits, aptitudes, abilities, interests, value systems, attitudes, and motivations. The chief objective is the prevention of frustrating and interfering states and anxieties through the application of learning theories at the cognitive level. The practitioners serve *clients*, not patients, and they are successful to the extent that the clients better understand themselves and their environment and integrate these understandings. The professional degree the counseling psychologist holds is a Ph.D. in psychology; the length of college and professional training is eight to nine years. He is usually skilled in statistical research; he is experienced in the interpretation of psychological tests. Very few of the medical schools represented here are in universities where these "invisible" workers are not present and working with the students, faculties, and administrators.

For purposes of the discussion here, I express the strong opinion that Dr. Farnsworth (speaking for faculty advisers) and I (speaking for professional counselors) are not presenting mutually exclusive points of view. This is not a case of *either-or*, but rather of the extent to which each of the two complementary methods of helping students with problems should be used in a given situation.

In my experience no highly successful program of faculty advising alone has been observed. It has been equally true that no highly successful counseling program has been observed which did not include a strong faculty advisory system. As I see it, we need faculty advisers for one important set of functions, psychiatric help for others, and counseling psychologists for still others. Rarely will an individual be in a position to wear all three hats at one time.

What can counseling psychologists do that faculty members or administrators of medical schools cannot do? Nothing, of course, if the busy physicians could take the time to add some rather complex skills to the already lengthy training they possess, but few faculty members or administrators find it feasible or profitable to invest from two to three additional graduate training years to become professional counseling psychologists.

Before going on to some specific examples of the professional counselor's work with medical students, it may be wise to point out that some lack of clarity exists in our terminology.[1] To avoid needless semantic confusion let us consider *advising* as the application of concrete information to aid students in avoiding mistakes in sometimes complex but usually well-charted areas of possible confusion. Advising as applied *to* students has an element of coercion, for, when done by a faculty member, the student may feel his academic fate is involved; rightly or wrongly he may fear that failure to follow advice, at least on the surface, can result in personal damage. Advising is normally a faculty or administrative function.

Guidance can be described as direction given as advice by someone who, through sound knowledge of academic and professional training, is qualified to act as a guide. This involves help, not prescription, in making decisions and is frequently more complex and difficult than advising. Guidance also is usually considered a faculty and administrative function, especially where the decisions bear on successful completion of medical training and entry into practice.

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[1] Hahn, Milton E., and MacLean, Malcolm S. *Counseling Psychology* (New York: McGraw-Hill Book Company, 1955), chaps. 1, 2, 13.

Counseling will be used here in its technical psychological sense, with a somewhat different meaning than in general usage. Counseling as used here indicates highly professional aid in meeting personal problems that may or may not be closely related to medical education. Among its categories are marriage, finances, religion, ethics, and broad vocational-educational direction. It should be noted that counseling is done *with*, not *to*, clients. This is an important distinction because the decisions that are made are those of the client. Little, if any, of the coercion that frequently exists in advising or guidance is present.

An important point that should be made here is that only about one-fourth of the people on faculties have a personality structure permitting them to be very happy or very interested in this type of work with students. The more deeply one is engaged in a physical science or mathematics, the less one tends to be happy working with the personal problems of large numbers of students. This is not a criticism. I think it is a fallacy to assume that all of us should "do good to everybody."

Psychotherapy is chiefly concerned with personality disabilities or disintegration. Here we are dealing with depth therapy, ordinarily in a medical setting. Treatment is for *patients*, not for clients. The psychiatrist, as well as the clinical psychologist and the psychiatric social worker, are most likely to be concerned.

Let me emphasize that *advising*, *guiding*, *counseling*, and *psychotherapy* are not sharply separated. There is overlap and under emergency conditions we are sometimes forced beyond our competencies. However, the categories defined above are useful in communicating here with greater clarity.

Counseling and the medical school

Some of the specific experiences in medical schools that illustrate the possible usefulness of the psychologist, particularly the counseling psychologist, are very simple on the surface. However, Dr. Funkenstein's symposium (see Chapter 1) indicates the underlying complexity.

One example I would like to mention is a medical school where, in 1946, their dean had 16 students on probation in the first- and second-year classes. With their permission, he requested a psychological assessment of them and, although a number of diverse personal problems were found to be present, a common thread among these students was slow reading. As many teachers know, reading problems can be symptoms of personality difficulties, but one can consider this and also treat the reading disability directly. Several of these medical students could read general material only at a speed slower than 150 words per minute and this with less than 90 per cent comprehension.

I hesitate to use the following example because it tests the reader's credulity, but there was one medical student with some rather serious personal disturbances in the second year who, as far as our somewhat crude measurements went, was reading fewer than 50 words per minute with 65 per cent comprehension *in the second year of a graduate curriculum.*

A special class in reading improvement was organized for these students. In six weeks, with an investment of 24 hours of their time, none read general material more slowly than 200 words per minute with 90 per cent comprehension. In

this instance the psychologists treated the reading disability, but not all these students took their personal problems to the psychologists; some preferred the dean or faculty members of the medical school. As I recall 14 finally received their M.D. degree. We cannot expect faculty advisers to be aware of this type of condition nor to have the skills to remedy the situation.

Many schools have found that comprehension in reading scientific material is one highly important variable in predicting training success in medicine, and the widely used Medical College Admission Test (MCAT) is a good measure of this achievement. At UCLA we find the test very helpful in general screening of applicants. However, there is other information that would be of predictive value which we don't get until too late. At the request of the UCLA Medical School, we are currently engaged in an ongoing follow-up of medical students as a research project on prediction. For the present second-year class, for example, the records of psychological assessments administered after admission indicated 10 students who would have trouble. This information was not provided to the dean of the faculty until troubles developed, but it turned out that during their first year 7 of the 10 had been in trouble of various kinds. It will be most helpful when we can have our information prior to admission, both for selection and counseling purposes. Here changes in approach need the combined efforts of faculty, administration, and professional psychologists.

Dr. E. K. Strong[2] at Stanford University has demonstrated a rather amazing finding that has not made much of an impression on medical schools. He determined the measured interests of freshmen entering Stanford University. Fifteen years after graduation from medical school more than three-fourths of those people with appropriate measured medical interests were practicing medicine. More than half of those with inappropriate measured interests who completed medical school were not practicing medicine 15 years later. The counseling implications of these findings appear obvious. It is again emphasized that faculty advisers do not engage ordinarily in such research. Certainly the findings have not changed selection practices markedly.

Evidence also is slowly accumulating that our various medical specialties reflect somewhat different personality patterns. Referring again to the work of Strong at Stanford, he has been quite successful in showing reliable and valid measured interest differences between the general practitioner, surgeon, pediatrician, and psychiatrist in the making. This and other research is valuable to those who select and counsel medical students, and it also sheds light on one reason why faculty advising alone seldom works well. The personality happy with science, that is, processes and things, is usually not happy dealing with persons and personalities. He often "loves humanity and dislikes people."[3]

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[2] Strong, E. K., Jr., and Tucker, A. C. "The Use of Vocational Interest Scales in Planning a Medical Career," *Psychological Monographs*, vol. 66, no. 9, 1952.

[3] Whereas this statement may be true to some degree, there is no clear-cut evidence that interest and ability in science on the one hand and in people on the other are mutually exclusive. There is a misconception that the physician who is a sound scientist cannot be competent in terms of dealing effectively with patients as people. Dana Atchley has clarified this point beautifully in his elegant essay entitled "Healer and the Scientist," which appeared in *The Saturday Review of Literature* 37, Jan. 9, 1954, pp. 7–9. [Ed.]

An often overlooked aspect of student aid is the amount and quality of premedical counseling done by the student counseling center on many campuses. Because I have worked on campuses where medical schools make great use of psychologists, I am aware of this, but it is my impression that such resources exist on many campuses where the potential relationship between the medical school and the psychologist is neither appreciated nor understood.

My last example of the professional counselor's potential value to medical schools and students refers to the need of medical students to blow steam in a safe place. Some personal items are, in the eyes of the students, completely unsafe in official hands. Faculty members are, to them, officials. Where privileged communications exist, students relieve pressure by simple reflection of feelings to someone outside of the threatening area. All of us in professional counseling have listened at length to the real and imagined troubles of medical students, and I believe they do need some personal help from those free of administrative control.

These situations have been cited to indicate that specialized resources are available to professional schools if they wish to use them. Counseling psychologists do not seek additional burdens, and the ones I know have little interest in attempting to interfere with the policies or operations of professional schools. But as a medical layman, who has specialized in an area of psychology that has been useful to medical schools, I do have some suggestions that might aid medical schools to seek out psychologists for their student personnel programs. Because I assume most of those who read this either attended or read the proceedings of last year's Institute,[4] I will not repeat what has also been reinforced in Chapter 1. What was considered there is relevant here, and I can be mercifully brief from here on because of those presentations.

Suggestions on utilizing psychologists

As to positive suggestions, first, it may be profitable for a medical school to analyze its needs and assign the functions of *advising, guidance, counseling,* and *psychotherapy* to those individuals who are most competent and willing to perform the duties. In some instances it may be desirable also to use some individuals who are not official members of the medical school faculty or administration.

The second suggestion is that consideration might be given to the expansion of the testing program. Many medical schools have found that a psychological assessment after admission is most helpful. Perhaps it would not be too difficult to organize regional assessment centers that could collect material for a systematic case study of applicants before admission. In other words, instead of receiving just the scores on the screening test, it would be possible to have 10, 15, or 20 institutions assume a more comprehensive data collection task for all. I urge consideration of an index of brightness, such as the *Miller Analogies Test,* to supplement the MCAT. Further, I believe such a testing program might reach into such areas as interests, value systems, emotional stability, and reading skills.

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[4] *The Appraisal of Applicants to Medical Schools* (Evanston, Illinois: Association of American Medical Colleges, 1957).

Third, research into the effectiveness of psychological tests as substitutes for the interview could be most enlightening.[5] Interviews may be necessary for public relations, but in some situations too much weight is given them. My own experience with the one-time interview over 20 years is that I am infallible only in determining the presence of more than one head.

In closing, let me emphasize there is no intent to tell the medical schools how to operate, but rather to point up areas for study basic to the counseling needs of medical education. Both in planning the research and in working with the students, I believe the professional counseling psychologists can be helpful to most professional schools and colleges. It is my further belief that in many fields of human endeavor the professional usually obtains better results than the amateur, even in medical education.

[5] For a discussion of the interview see *The Appraisal of Applicants to Medical Schools*, *op. cit.*, pp. 47–84.

PART III

Sociological Contributions to the Study of the Medical Student

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Introductory Note to Part III

Part I and Part II have been focused on both the diversity of school-student interactions and the commonality of problems created by forces operating in all medical school environments. The following chapters take an intensive look at recent contributions to the study of the effects of environmental forces on medical student behavior and attitudes. The material in this part of the Institute report centers around the paper reporting on the sociological methodology, which was prepared by Dr. Richard Christie and Dr. Robert K. Merton and read at the Institute by Dr. Merton; it is reproduced here as Chapter 6. The introductory paragraphs that follow were prepared by Dr. George G. Reader of Cornell University Medical College, where many of the studies were made.

By way of introduction to Part III, it seems appropriate to tell some of the background of the sociological studies described in the following pages. My own interest in behavioral science arose in connection with an experimental teaching program at Cornell, the Comprehensive Care and Teaching Program. This project has been described in detail elsewhere,[1] *and all that needs to be said about it now is that it is designed to teach students in their last year of medical school how to apply medical knowledge to the care of ambulatory patients: this is done by giving students responsibility for patients and by making available to them consultants who help them deal with whatever problems the patients present. Within this context, a major goal of the Program has been to provide students with experiences on the basis of which their attitudes toward the care of patients might be modified to resemble more closely those held by mature physicians. It thus seemed obvious that if we were going to be able to determine whether or not the Program was actually achieving its objectives, we would have to find systematic methods for documenting the presence or absence of changes in these attitudes.*

While looking for help in this connection, we learned that the Bureau of Applied Social Research of Columbia University had a great deal of experience with similar problems. For example, they had developed techniques for studying the effectiveness of advertising and political campaigns. These techniques seemed applicable to the problems in which we were interested, and we hoped therefore that the Bureau would at least provide some advice about the study of attitude changes in our students.

At the same time it so happened that Dr. Robert K. Merton, who is Professor of Sociology at Columbia University and Associate Director of the Bureau of Applied Social Research, was looking for an opportunity to study the medical profession. He had long been interested in the role of the professions in American society, and on the assumption that medicine is in many respects a proto-

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[1] Reader, George G. "Comprehensive Medical Care," *J. Med. Educ.* 28, 1953, pp. 34–9; "Organization and Development of a Comprehensive Care Program," *Amer. J. Pub. Health* 44, 1954, pp. 760–5. See also "The Cornell Comprehensive Care and Teaching Program" in Merton, R. K., Reader, G. G., and Kendall, P. L. *The Student-Physician* (Cambridge: Harvard University Press, 1957), pp. 81–101.

type for the other professions, he believed that sociological investigation of medicine and medical education might well lead to findings of more general scientific significance. Our interests thus coincided in a most fortunate manner, and a collaboration that was to prove mutually beneficial began. Indeed, the work Dr. Merton and his colleagues have done in the course of this collaboration of some five years' duration inspires confidence in the possibility of applying scientific methods of investigation to that part of medical teaching and practice which in the past we have called the art of medicine.

One feature of the studies that has been particularly interesting to me is the effect of the research itself upon participating medical schools, or at least on Cornell Medical College. When it is suggested that the social system in which one resides requires examination for any reason the status quo *is threatened, and a certain amount of resistance is immediately encountered among those in the system who feel that it is wiser not to tamper with it. This is an understandable kind of resistance that probably occurs quite generally. But when social scientists invade your habitat and begin to poke into its nooks and crannies, they perhaps evoke more resistance than would be found if another kind of investigation were being carried out. There is really no protection from social scientists! You cannot say, "We will admit them to this one corner only," because it becomes apparent quite quickly that they cannot draw reasonable conclusions about one aspect of the social system without examining the rest of it, or at least without examining those parts of other areas that bear on the one under study.*

In other words, it is almost impossible to understand one part of a social system without fairly complete information about the whole, because the system is a complex configuration of variables, all of which interact in dynamic fashion. What the investigator hopes to do is to find identifiable patterns of activity that go on within this configuration; in studying the individuals who make up the system one must find some way of identifying groups of individuals who share certain characteristics in common so their activities can be traced out. To do this it is necessary to examine the entire system.

Despite the problems, there are many advantages to having this kind of investigation carried out in one's medical school. Apart from the privilege of associating with intelligent people who know their business, there is a distinct benefit in being exposed to their point of view. One of the essential features of this point of view is what is called value neutrality. Many of us tend to evaluate what we see going on in a medical school in terms of good or bad: we talk of our good students and our poor students; we point out an instructor who has the right attitudes toward patient care and distinguish him from another instructor with the wrong attitudes. Social scientists, on the other hand, observe what is happening and attempt to determine what influences are at work, but never in terms of good or bad influences. It is only when the implications of the findings are spelled out and their possible applications considered that those engaged in administration may place a value upon the results emerging from the research.

This is a tremendous asset to medical educators, or at least it has been to this one. In the past I have sometimes flatly condemned certain students for being lazy or otherwise inadequate; now before passing final judgment I tend much more frequently to consider first whether there may be some kind of built-in strain in the situation of the medical school that is causing them to behave the

way they do. If this strain can be eliminated, most medical students will make every effort to perform as we should like them to.

Another real advantage to having research go on is that it forces one to specify one's objectives; not only that, it forces one to continue to refine these objectives. This must be done so that the investigators can judge whether or not what is going on in the situation bears any relationship to these aims.

Finally, as a result of the findings—even tentative ones—that grow out of such research, one develops a much better understanding of the kinds of influences that are operating in the social system of the medical school and of their relative effects on students. One is therefore in a better position to judge which influences to try to eliminate, which ones to try to emphasize, and which ones to try to modify.

In this regard I think the social scientists have had a stabilizing influence. Time after time they have pointed out that, because a medical school is a dynamic complex of interdependent variables, it is dangerous to start manipulating one of these variables unless you are sure of what effect this change will have on the others. They have therefore urged that, before undertaking manipulations of one part of the system in the hope of improving it, one study the total system thoroughly so that the interconnections between its different parts are clarified. Only then can one be reasonably confident that an improvement of one situation will not result in deterioration of other situations.

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CHAPTER 6

Procedures for the Sociological Study of the Values Climate of Medical Schools

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THIS IS A REPORT OF some of our experiences in trying to develop ways of studying the educational environment provided by medical schools. It has two principal parts. The first part gives the philosophy of our investigation. It summarizes some of our assumptions and the ways in which we think about the problems and the data; in a word, it deals with our conceptual scheme. Physicians have ways of thinking about and observing sick people and disease; sociologists and social psychologists have ways of thinking about and observing personalities and social environments and the interplay between these.

The second part describes some procedures we have worked out to identify one part of the educational environment: what we describe as the climate of values. In conjunction with each procedure, specimen findings are reported because, preliminary as they necessarily are, some of these may give occasion for further thought about the values that obtain among medical students.

A SOCIOLOGICAL OUTLOOK

We assume first that changes in one part of a social system will tend to bring about changes in other parts of that system. It is with social ecology as with animal and plant ecology. For example, the criteria and procedures a school

* The illustrative material in this paper has been gathered from various memoranda and working papers prepared by staff members of the Bureau of Applied Social Research of Columbia University in the course of research on the Sociology of Medical Education, under a grant-in-aid from the Commonwealth Fund. It is impossible to credit in a brief footnote the many faculty members of the medical schools of Cornell University, the University of Pennsylvania, and Western Reserve University, without whose generous help these studies could not have been made.

adopts to select its students help to shape the environment the school provides for each of its students. As the criteria of admission vary, obviously so will the character of the student body vary. If the admissions committee in one school assigns prime importance to high college grades, the composition of students in that school will of course be skewed toward the upper reaches of this kind of achievement. As a result, students of any particular degree of capacity will find themselves in a distinctly different kind of environment of peers than would those same students in a school having a differing set of criteria for admission.[1] If the criteria are changed, the web of student life will be changed. Student competitiveness will be greater or less; student anxieties will be variously deepened or curbed; the prevailing atmosphere of greater or less interest in research will presumably change. This illustrates part of what we mean by saying that interrelationships exist among the parts of a system of social or human ecology just as they exist in systems of plant or animal ecology.

Our second assumption follows from the first. Students, faculty, and other personnel in the medical school are conceived as interdependent components of a social system. The educational development of each student is therefore held to be affected, to some significant extent, by his social relationships with others in the school and by the values these others hold. Such factors compose an important part of the social environment of learning by medical students. In this view the learning and performance of students vary not only as their individual qualities vary but also as the social environment provided by the school varies.[2]

Last year's Institute gave some attention to students who were underachievers and others who were overachievers, that is, students who did worse in medical school than their Medical College Admission Test (MCAT) scores or IQ indicated they should, and those who did better than would be expected from these measures of capacity. Some of the differences in achievement were, properly enough, ascribed to differences of personality, of the nonintellective attributes of the student. This is important, but from the sociological standpoint it is not the whole story, not by a long shot. Overachievement and underachievement, the extent to which the student actualizes his potentialities, are also affected by the environment that the school provides him. Some environments presumably draw out the best in practically all kinds of students; some draw out the best only of certain kinds of students; other environments stultify some students but not others; and finally some environments are not conducive to the development of many students.

Thirdly, we assume that climates of value differ to an unknown degree among different medical schools. This provisional assumption is made not so much because medical educators say that this is so, but rather because preliminary study has found it to be so and also because of theoretical reasons for expecting it to be so. Differences among students in the selection of schools they wish to enter,

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[1] *Cf.* Merton, R. K., Reader, G. G., and Kendall, P. L. *The Student-Physician* (Cambridge: Harvard University Press, 1957), pp. 64–5.

[2] On this, see *ibid.*, p. 63 ff.; also the paper by Daniel H. Funkenstein, "Possible Contributions of Psychological Testing of the Nonintellectual Characteristics of Applicants to Medical School," in *The Appraisal of Applicants to Medical Schools* (Evanston, Ill.: Association of American Medical Colleges, 1957), pp. 88–112, especially pp. 100–4.

that is, what is called self-selection; differences in the criteria for admission, that is, institutional selection; differences in the self-selection and institutional selection of faculty members; differences in the traditions that are maintained or slowly changed in various medical schools; differences in the local community, with their distinct expectations of what the medical school should be—these are a few of the bases that might make for differences in the value climates of medical schools and that may ultimately help account for the differences to be methodically investigated.

But if these environments differ, it does not follow that the differences need matter for the development of students moving through them. We make, then, a fourth assumption—and it is important to note that it like the others is still assumption, not yet demonstrated fact—that, however crudely measured, large differences in the social and cultural environment of medical schools result in significant differences in the education of students. Broadly and loosely speaking, the environment can be thought of as social, comprising the relationships that obtain between the people in the school, and cultural, comprising the values held by people in the school. Social relations and cultural values are held to be related: each affects the other. In this paper, however, we shall largely confine ourselves to a report of ways in which we have tried to search out and to describe the values existing in medical schools.

We focus on the climate of values because we think it especially, though not exclusively, important to the educational process. Unless students acquire the basic values of scientific medicine before leaving medical school, they are not apt to do so later. Once they have entered upon their own practice, many will find themselves working under conditions that make it difficult to live up to these values. As independent practitioners, they will no longer be under as comprehensive and sustained scrutiny of other medical experts as they were in medical school. Their practice will not be, in effect, monitored by their peers and superiors as it was in the teaching hospital. If the values basic to the practice of scientific medicine have not been strongly instilled in the medical school, it is unlikely that its graduates will acquire these values and live up to them in the often less favorable circumstances of private practice.[8] It is in this functional sense, and not only in the sense of medical ethics, that the climate of values provided by the medical school becomes important, just as the acquiring of knowledge and skills becomes important in its way to the education of the physician.

These, then, are some of our working assumptions and our reasons for electing to study climates of values. It is true that we often find ourselves speaking of "climates" and "atmospheres," of a climate conducive to research or of an atmosphere conducive to learning. Everyone senses what is meant by these expressions. Some recognize that these need not be treated as only figures of speech, that they need not remain meteorological metaphors. But if climates of values are to be examined and methodically related to the ways in which they affect the learning of students, then methods must be developed to describe and to compare them. Without going into technical details, the ensuing pages report some of the alternative methods we have used to get at one or another aspect of a climate of values.

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[8] *The Student-Physician*, *op. cit.*, pp. 77–8.

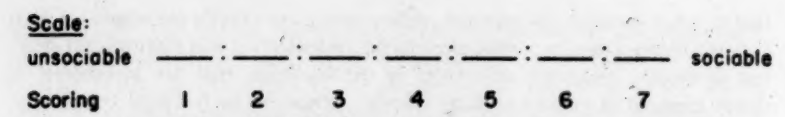

FIG. 1.—Semantic Differential Form for bipolar trait: Sociable-Unsociable

PROCEDURES FOR THE STUDY OF CLIMATES OF VALUES

1. Distribution of selected values among students

One way of discovering the values held by students, it would seem, is simply to ask each of them about their values and have them tell you. But the direct question has severe limitations. For certain kinds of values the student will reply, even under conditions of insured anonymity, not in terms of the attitudes and values he actually holds but in terms of those he feels he should hold. In other cases he does not know which values he holds—he is not capable then and there of expressing them—and he, like most of us, must be helped to express them. When we are interested in discovering the value climate, the cultural atmosphere of the school, we find that students do not intend to mislead deliberately when they report what they *should* believe rather than what they *do* believe. Social and cultural atmospheres are largely created by what members of the group believe to be the appropriate thing to believe and say and do.

Nevertheless direct questions must be supplemented by the use of other standardized tools that help the student express his values even when he has not before put them into words. One class of such tools consists of having students (or others) report the attributes of people they value highly; the attributes of the prized person are taken to reflect the values held by the student. A particular example of this procedure will illustrate the general class of procedures.

This tool, the Semantic Differential as it has been forbiddingly called by its ingenious inventor, Dr. Charles E. Osgood, is essentially a graphic rating scale.[4] The student is asked to indicate the extent to which a person, an idea, or a social image is described by a particular trait that varies between polar extremes. For example, we asked medical students to rate various types of people on a series of such polarized traits. The task confronting the student is illustrated in the first figure, where an ideal physician is to be rated in terms of characteristically being sociable or unsociable. If the student's image of the ideal physician includes a high degree of sociability, he makes a check at the extreme right of the line; if it includes a high degree of unsociability, a check at the extreme left. If he sees this as largely irrelevant, he makes a check in the center. These responses are then combined to form ordinal scales.

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[4] For the background of the research leading to the Semantic Differential, see Osgood, C. E., "The Nature and Measurement of Meaning," *Psychol. Bull.* 49, 1952, pp. 197–237; Osgood, C. E. & Suci, G. J., "A Measure of Relation Determined by Both Mean Difference and Profile Information," *Psychol. Bull.* 49, 1952, pp. 251–62. The version of the Semantic Differential used in the research being reported here has not yet been published. It is based upon a factor analysis of self-descriptions. We are indebted to Professor Osgood for the use of this scale in our research.

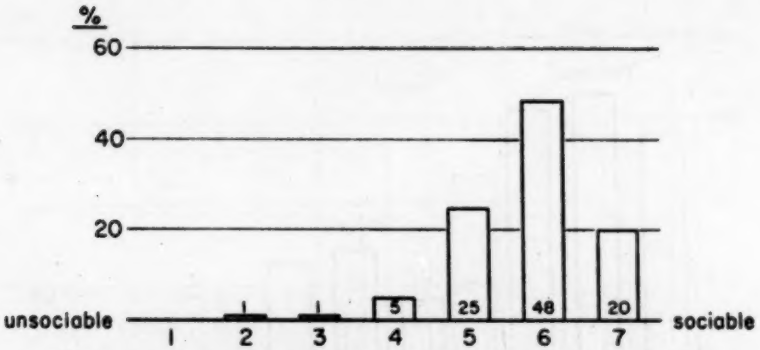

FIG. 2.—Distribution of ratings for Sociable-Unsociable for concept of Ideal Physician

Figure 2 shows the distribution of responses to the image of the "ideal physician" reported by one junior class and three senior classes of medical students. As you see, the students tend to regard the ideal physician as sociable, a bare 2 per cent see him as somewhat unsociable, and only 5 per cent consider the trait irrelevant to the ideal physician. Of course this does not tell us a blessed thing about the place of sociability in the practice of medicine; that is not its purpose. At most it allows us to infer that students at this stage of their education tend to set store by this characteristic of the physician, for this is the way in which they tend to see the ideal physician.

The rating in terms of sociability is one of five sets of ratings that are combined to form a scale of introversion-extroversion. The next figure reports the

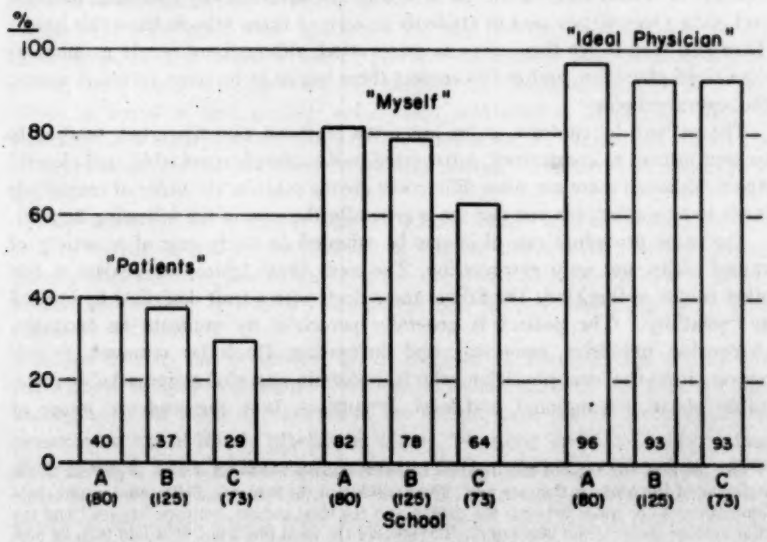

FIG. 3.—Extroversion of Patients, Myself, and Ideal Physician as seen by medical school seniors.

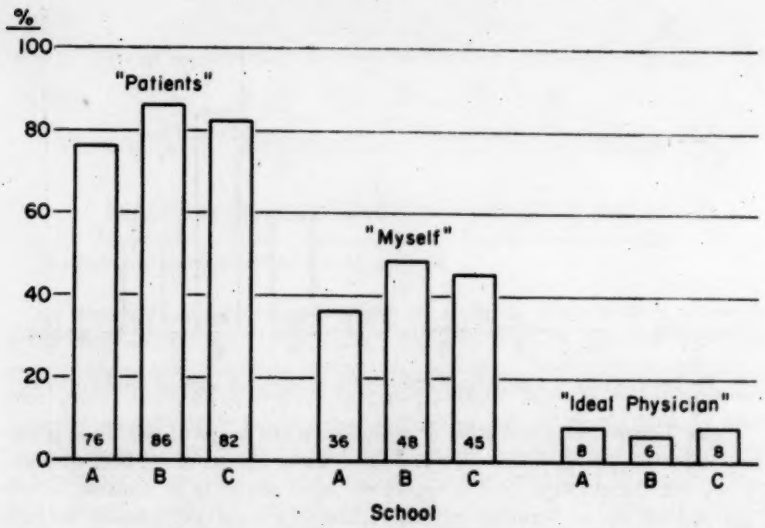

FIG. 4.—Volatility of Patients, Myself, and Ideal Physician as seen by medical school seniors.

proportions of seniors in three medical schools who visualize the ideal physician as typically extroverted and the proportions who perceive the patient and the medical student himself as similarly extroverted.

It is evident that students are largely agreed on their image of the ideal physician as one who is extroverted: he is seen as characteristically outgoing, sociable, and open. Over 90 per cent of students in each of three schools have this image. They also tend to see themselves as extroverted, although not nearly as much as the valued physician, and in this respect there begins to be some variation among the several schools.

The patient, by contrast, is far less often regarded as extroverted, tending to be seen instead as constrained, introverted, self-centered, unsociable, and closed.[5] Again, although there are some differences among schools, the order of magnitude tends to be similar, (as you can see is generally the case in the following figures).

The same procedure can of course be adapted to study any of a variety of valued traits, not only extroversion. The next three figures summarize a few other results of this kind. The first of these deals with a trait described by Osgood as "volatility." The patient is generally perceived by students as excitable, changeable, impulsive, emotional, and fluctuating. He is far removed, in this respect, from the ideal physician, who is uniformly regarded as remarkably calm, stable, placid, unemotional, and level. It appears, from the students' image of

[5] One merit of this type of investigation is that it poses problems that were as evident at the beginning of the study as they are now. The flexibility of the Semantic Differential would allow comparisons to be made between the patient and the ideal patient, between "myself" and the ideal medical student, and between the average and the ideal physician. It would then be possible to compare the traits of idealized images and of actual types to discover the degree of perceived discrepancy between values and actuality.

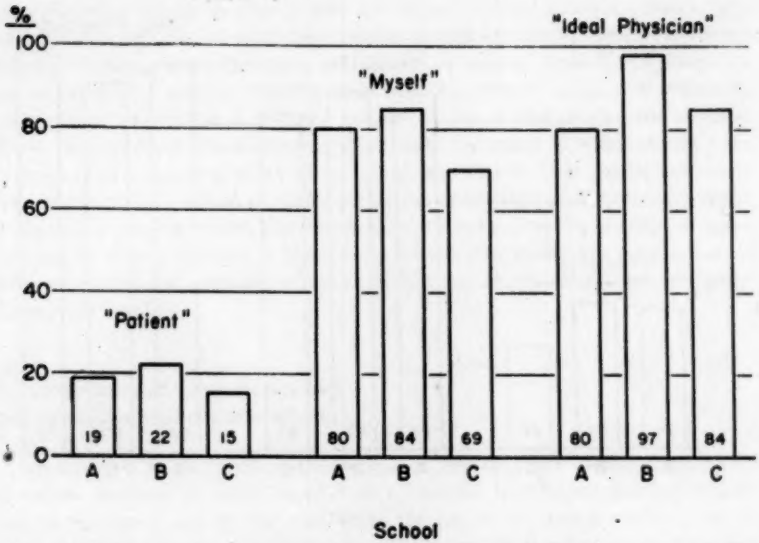

FIG. 5.—Dominance of Patients, Myself, and Ideal Physician as seen by medical school seniors.

themselves, that they do not feel as fully in command of their emotions as they implicitly believe desirable. At present we infer this only from the differences between their image of themselves and of the ideal physician, an inference that remains to be checked by other data.

The next scale deals with dominance. As you see, the students perceive the ideal physician, and to a large extent perceive themselves, as dominant: as masculine, hard, rigid, strong-willed, and straight. In contrast, the patient is perceived as feminine, soft, pliable, weak-willed, and twisted. Unlike the traits of volatility or stability, where students see themselves as far removed from the ideal physician, on the dominance scale they consider themselves as approximating him.

This procedure for getting at implicit values should now be familiar: it consists in having valued persons (or valued ways of life or valued ideas) systematically characterized, and of having these compared with perceptions of oneself to find how closely or remotely the person sees himself measuring up to these values.

Before leaving this procedure, let us consider an example that will become particularly enlightening when we examine new evidence later on. This is a scale dealing with the outer appearance of the person, with the image he thinks he presents, or would like to present, to others. We came upon this aspect in two distinct ways. First, we were impressed by the fact that a committee on admissions to medical school included the personal appearance and the outer social graces of applicants among their working criteria; these characteristics presumably being of importance in social interaction. And this fact reminded us of the reports by our field observers in medical schools saying that they felt like the

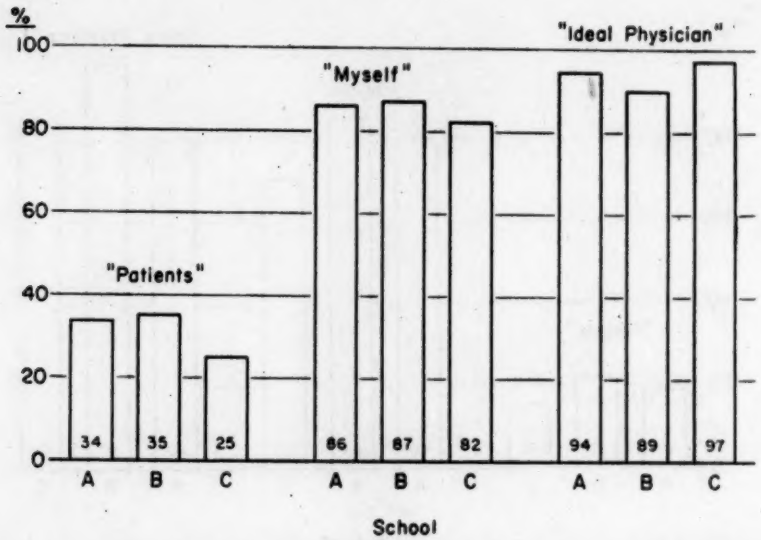

FIG. 6.—Persona of Patients, Myself, and Ideal Physician as seen by medical school seniors.

new Chinese waitress who could not tell one customer from another because all Caucasians looked alike to her. The observers reported great difficulty at first in distinguishing one medical student from another since so many of them had the same pleasant, nice-looking, attractive, healthy appearance, unlike the diversified appearance of the graduate students in sociology to whom they were more accustomed.

These observations led us to introduce another scale designed to tap the appearance presented to other people which, in accord with long-established terminology, we called the *persona*. The findings, summarized in the next figure, show that medical students do indeed perceive the ideal physician as handsome, smooth, rounded, poised, and an insider; an image they also tend to hold of themselves. The patient, however, is seen as ugly, pitted, narrow, awkward, and an outsider, an image that does not impress one as particularly flattering. We do not yet know whether this image of the patient is affected by the frequent differences between the social class of the student and of the patients with whom he comes into most frequent contact, but this could be found out.

The composite picture of the ideal physician that emerges from these multiple images and, to a less extent, the students' composite picture of themselves, is one of high extroversion, slight emotionality, thorough dominance, and a smooth exterior appearance. This is in decided contrast to the picture of the patient. Such preliminary findings raise questions about the value climates of medical schools, questions to which we shall return later.

Here we need only summarize certain features of this one procedure for getting at the climate of values. First, the attributes assigned to the ideal physician furnish approximate indicators of values by indicating what students assume a

good physician should be like. It does not do so by direct questions, which may lead to pat repetitions of what they have been told by faculty members, but by indirect inferences from the values exemplified by models. Second, this procedure can of course be used to identify other possibly valued traits and practices: continued self-education, a scientific outlook, technical proficiency, and the like. Third, the procedure also enables us to estimate the extent to which students see themselves as measuring up to these values, and this in turn can be related to the quality of their actual performance as junior physicians. Fourth, use of the procedure in various schools provides a basis for comparing the climates of value that obtain among students in the several schools and within the same school at different times—for example, after major changes in the curriculum or in the methods of teaching.[6]

2. Comparisons of value distributions among medical students and others

We turn now to a second and related type of procedure for identifying climates of values. Systems of value found among students in different medical schools can be compared, and by the same token the values of medical students can be compared with those of other groups to discover which are distinctive of medical neophytes.

As nearly everyone knows, it is part of the professional role of the physician to exercise authority over the patient. However, matters extraneous to that role may reinforce his professional authority, for example, when the patient is of distinctly lower social class or far less educated than the physician. Such functionally extraneous differences between physician and patient can work to enlarge the exercise of legitimate professional authority by inviting the physician to make use of such additional bases of power and dominance. As has been reported, we found that seniors in the medical schools under review tended to perceive themselves as dominant and patients as subordinate. This raises the possibility that these perceptions are related to other values held by students.

To explore this possibility use was made of a scale of values, developed by the senior author of this paper. The scale is based largely upon concepts taken from the writings of Niccolò Machiavelli.[7] The reputation of Machiavelli is of course suspect in some quarters, perhaps most of all among those who haven't carefully studied his writings. Nevertheless, we need make no judgments here about the moral worth of having a high rather than a low score on the scale. We can report that the scale has what is known as high internal reliability; in the language of measurement, this means that it reflects something inwardly consistent in the individual person and distinguishes, at least roughly, among people.

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[6] Clearly, any inferences about the students' climates of values are limited in a procedure such as this to the extent that the range of qualities the student has an opportunity to rate is limited. It is desirable to consider the degree to which any given set of qualities is representative of the total pool of qualities that would be involved in the theoretically total climate. [Ed.]

[7] The development of the scale is described by Richard Christie in "A Quantification of Machiavelli" (unpublished).

It will be noted that the scale is given no title. This is not an oversight. During its development a rather cryptic notation has been used, the first version being referred to as Mach I and the fourth version, used to obtain the results reported here, becoming Mach IV. It is usually administered with items from other scales in an opinion inventory.

The problem of an appropriate name for the scale is a baffling one. Experience indicates that the titles of scales often become reified and that few people look beyond the title and examine the items in order to understand what is being responded to. This could be described as a "Machiavellianism" scale, since it is based upon items taken from or congruent with Machiavelli's writings. But such a title creates problems both of public misunderstanding and of interpretation of findings.

In popular usage, Machiavellian means principles of conduct characterized by cunning, duplicity, and bad faith. (Machiavelli himself, it will be remembered, was notoriously unsuccessful in this sense.) It might be entitled an "operator" or "manipulator" scale, but this would unjustifiably imply behavioral validity has been unequivocally established and would again invite public misunderstanding. Abbreviations are not readily found; psychological jargon has already stamped a simple M as the term for movement response on the Rorschach, *Ma* has been preempted for the hypomania scale on the Minnesota Multiphasic Personality Inventory, and to call it a Mac scale would imply undue familiarity with a remarkable man, whatever the present state of his soul, and might lead to misleading inferences about his nationality.

Mach evades these particular difficulties, but its connotations of supersonic speed and power must be recognized. Still they are similar to the connotations of Machiavelli's writings—people are ambivalent about the implications of both.

The items in the scale express a conception of human nature as fallible and weak, a lack of affect (i.e., the value of detachment in dealing with other people), and the use of expedient procedures in social relations. Those making a high score on the scale endorse such items and reject items of opposed kind, such as those portraying human nature idealistically, emphasizing the need of warmth and affective involvement with other people, and holding that social relations should always be governed by strict adherence to ethical norms.

The dimension appears to vary from a tough-minded philosophy of life (in William James' sense) to a tender-minded one, verging on a sentimental *Weltanschauung*. Among the more than 2,000 people thus far tested, only a few of course score at the extremes of the scale. Their mean scores tend slightly toward rejection rather than toward acceptance of the items drawn from Machiavelli. We can also report some evidence that worldly sophistication and high scores on the scale appear to be related. At any rate college students in the Midwest score significantly lower on the scale than college students in the East.

By way of illustration, the next figure shows the percentage of agreement with four items in the scale among three classes of seniors in medical school, a sample of 1,200 college students in various parts of the country, a small sample of top-echelon business executives, and a sample of registered lobbyists in Washington, D.C.

You will note that the medical students are the most Machiavelli-like in outlook of the four groups on each of the four items. This is generally the case:

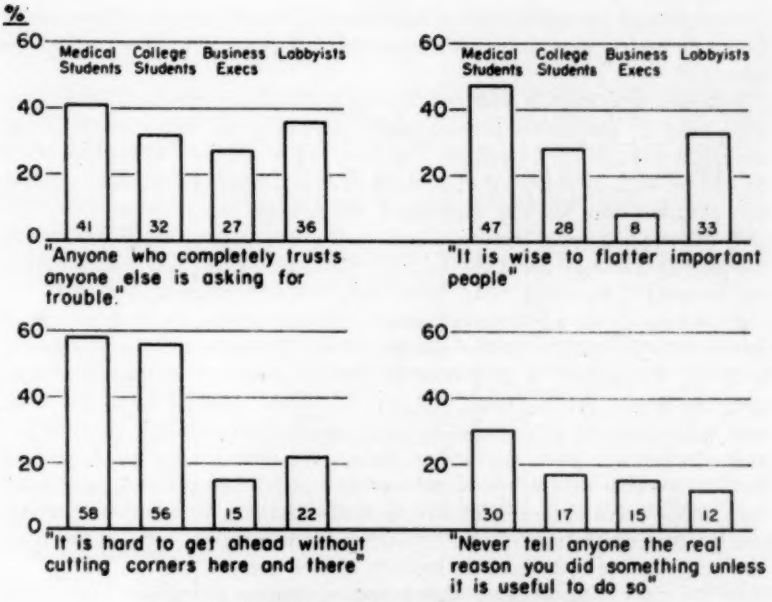

FIG. 7.—"Machiavellianism" among four aggregates

medical students make higher scores than college students on 14 of 20 items, higher scores than the business executives on 16 of 20 items, and higher scores on all seven items on which they can be compared with the registered lobbyists.

These findings must be carefully interpreted, not taken hastily at face value. We suspect that if the medical students were compared with the graduates of the colleges from which they themselves were graduated, and were matched for age and sex, the differences would largely wash out. Comparisons among groups must be cautiously drawn also because of the functional differences in the meaning of statements for those who have very different roles in the social system. Consider, for example, the meaning that the statement asserting the wisdom of flattering important people might have for the sample of business executives. These men *are* the important people in the corporations they head; flattery is a technique that may be more often used on them, rather than one they need use on others. As for the lobbyists, the political scientist who interviewed them at length found that they did not typically conform to the popular stereotype of them.[8] He also concluded that on the whole they were remarkably ineffectual.

We provisionally interpret the findings to indicate that medical students are no *less* cynical and manipulative than the others with whom they have been compared. When over half of these seniors from some of the leading medical schools in the country agree that it is hard to get ahead without cutting corners, when almost half endorse the expedient use of flattery, and when two-fifths believe that trust is not to be lightly bestowed, it can be inferred that a philosophy

[8] We are grateful to Dr. Lester Milbreth for furnishing us with these data that were collected in a study of Washington lobbyists sponsored by The Brookings Institute.

of manipulation has substantial currency among medical students. (Unfortunately, we do not yet have comparative materials for students in other professional schools.)[9]

Although experience in scale construction and analysis persuades us that the scale based on Machiavelli permits valid inferences about values and behavior, one might well ask—and justifiably—whether this is really so. After all, it might be that the scale measures the opposite of what it purports to measure; that the true Machiavellian, the true opportunist, will indicate the converse of what he truly believes and would thereby emerge, on the scale, as least in agreement with Machiavelli. The scale might thus turn out to be a measure of honest self-scrutiny and integrity of reporting, rather than a measure of Machiavellian outlook.

Furthermore, you might justifiably ask whether the results of this measure accord with the realities in the medical school. We too asked ourselves these questions. Fortunately, a member of the faculty at one of the medical schools agreed to help us put the matter to a test. He did not know the particular items used in the scale and of course he did not know the scores students made on the scale. But he did know the students themselves, having interviewed most of them before they were admitted and having kept in close personal touch with them during much of their four years in medical school. We feel safe in saying that he has a closer knowledge of students in his school than any other medical teachers known to us have of the students in their schools.

On the basis of his personal observations of students, he picked out the 20 seniors who, to his mind, "have the most cynical attitude toward people and are the most opportunistic" and the 20 seniors at the other extreme "who are the most overflowing with love of mankind and human kindness." A statistical test of the accuracy of his judgments found that the students he selected as cynical and opportunistic scored significantly higher on the scale (beyond the .05 level) than those he selected as farthest removed from these attitudes. It should be emphasized that his judgments and our scale-scores were not in perfect accord; we are currently examining the cases for which the estimates disagreed in an effort to discover whether this minority of the students misled us or presented a misleading façade to him.

We have presented this comparison of responses to identical items at some length because it suggests to us the utility of obtaining comparative measures of the values obtaining among medical students and of those in other walks of life. Measures confined only to medical students may give thoroughly misleading impressions of their systems of values.[10]

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[9] Since the paper was written, the test has been taken by graduate students in a social psychology seminar conducted by the senior author. It may be of interest to medical educators that these students scored slightly higher on the scale based upon Machiavelli than any of the four classes of medical students reported upon above.

[10] Further evidence on this point is provided by new data. To our surprise, graduate students in social psychology rated the ideal professor as even more extroverted on the Semantic Differential than medical students rated the ideal physician.

As stated in the introductory note to Part III, Dr. Reader noted that investigations of medical schools by social scientists forced him to re-examine his educational objectives and basic assumptions. The effect is reciprocal; the data indicating the emphasis upon surface characteristics by medical students have led us to examine this outlook among graduate students in social psychology and have further emphasized the question of whether this holds for members of other professions as well.

3. Inferring values from the qualities of students selected by fellow-students for particular social roles

A third way of inferring the climate of values in a school is by examining the values held by those who enjoy high status among the students themselves. This assumes that the students singled out by their peers for esteemed positions more fully embody the values prevailing in the school than do those not so selected. The following example brings out another facet of student attitudes toward the use of authority.

The sophomore, junior, and senior classes at one medical school were asked an "iffy" question about this hypothetical situation:

> Dr. L. is a prominent specialist with a large practice. One of the relatively new patients is J. W., a factory worker without much education, who is suffering from arteriosclerotic heart disease. This condition requires regular and time-consuming treatment. Whenever J. W. comes to the office, some member of his family—all of whom are anxious about his condition—comes with him and insists on talking to Dr. L., and taking up his time. After two visits like this, Dr. L. tells J. W. that in the future he will have to come alone, as he has no time to waste talking to family members. J. W. says he "doesn't like" to come alone, and that his family prefer to have someone with him at each visit. Dr. L. tells him that this is impossible and that a grown person should not act so childishly. *What do you think about the way Dr. L. handled this case?*

Students' evaluations could be classified in terms of the degree of agreement with Dr. L.'s management of the patient. About 10 per cent agreed fully with his handling of the situation, and these were designated as having a dominant orientation, in contrast to the rest who were nondenominating and patient-oriented.[11] Students with these opposed types of orientation toward the patient differed in other interesting respects having little or nothing to do with the management of the patient, but those differences are not reported here.

Each student was also asked to identify his closest friends among fellow students and to designate the student whom he regarded as best qualified to represent the school at a national conference of medical students. The results are presented in the next figure.

In all three classes the students who approved of Dr. L.'s behavior in dominating the patient are, proportionately to their numbers, less often selected, both as friends and as student representative, than the others. Not only do the other students less often select dominance-oriented students as friends, but the dominant students themselves tend not to select one another as friends or as a suitable representative of the school. As Florence Ruderman, the author of this study, summarizes it: the dominance-oriented students "stand out from the rest of the student body. They are, at least comparatively, without friends and without admirers in the school."

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[11] The research from which this is drawn systematically compares students having one of three types of orientation toward the patient: the dominating at one extreme, the patient-oriented at the other, and an intermediate group who agreed with Dr. L.'s objectives but not with his methods, suggesting alternative and more tactful ways of handling the situation. In all pertinent respects of attitudes and behavior, the intermediate group falls between the two extremes. Ruderman, Florence, "Orientations Toward Patient-Management: A Factor in Medical Education," unpublished ms., Columbia University, Bureau of Applied Social Research, 1954; a part of this report will be published shortly.

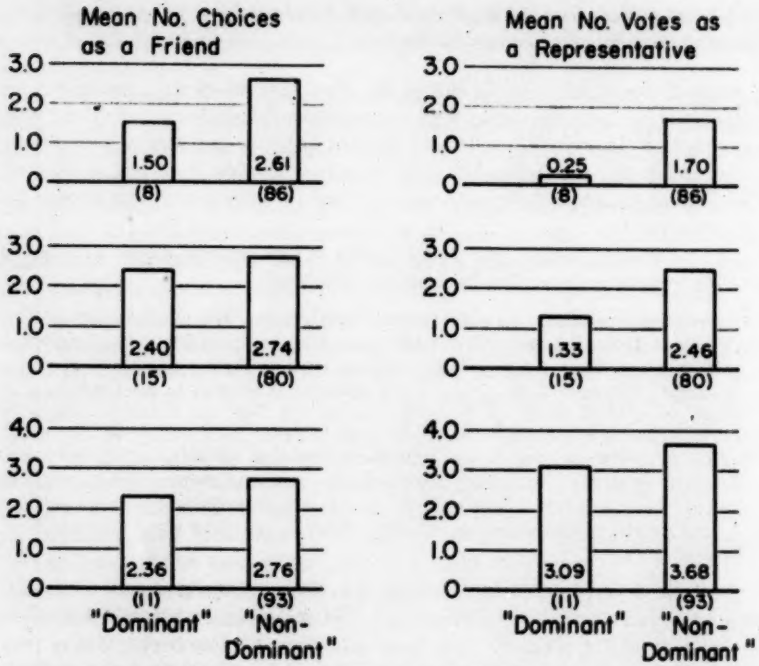

FIG. 8.—Student choices of friends and school representatives among Dominant and Nondominant students. (Top row: second year; middle row: third year; bottom row: fourth year.)

We infer from this evidence that such authoritarian treatment is largely rejected from the values prevailing among students in the school. Had the question been asked directly of them—had they been asked whether autocratic control was an important value—the replies would probably have been less indicative, for many might have given the "proper answer" rather than report what they actually believed. This indirect method of assessing the value climate has particular cogency in another respect: after all, in making their choices of friends and of institutional representatives, the students could not possibly have known that the sociologist would classify the chosen students in terms of their orientation toward patients and the exercise of authority. Yet the statistical analysis of these choices gives results consistent with the impressions we have gained from sustained and intensive observation of the value environment in this school.

One limitation of the data we have just examined is that the number of dominating students, by the criteria employed, is small; another is that we have only one replication for each class. We know, from other evidence, that in spite of fairly constant standards of admission and the possibility of selecting among a large number of qualified candidates at these schools, the distribution of values held by different classes of students differs somewhat as they successively come to the same stage of their education. Within the broad trends that recur, each class manages to exhibit distinctive characteristics. Which of these characteristics

then are part of the enduring climate of values and which vary among the groups of students that constitute successive classes from year to year? To deal with this type of problem requires another method of assessing the climate of values.

4. The panel method of inferring values

The procedure for the longitudinal study of large numbers of people is known in sociology as the panel technique. The panel method of inferring values employs the procedure of studying the same people at consecutive times, in this case students as they move from one stage to another of their medical education. It enables us to identify (1) the students exhibiting typical changes, that is, students developing their values in the same manner as the modal number of their classmates; (2) those who scarcely change their values at all; and (3) those who exhibit deviant changes, in the strict sense that they change in a direction opposite to that of the rest. The term "deviant" is of course used only in its statistical sense and does not imply any disparaging connotation. It means only that the deviant student is a nonconformist who departs from the norms prevailing in his class; we do not judge him, for he rather than they might be right. After all the autonomous student, resolute in disagreement with others so long as he finds that the evidence supports his, rather than their, view, is precisely the kind of scientific nonconformist that the faculty of many medical schools avowedly seek to produce.

The panel technique is doubly useful: it enables us to identify the students who change much or little in one direction or another, and it helps us to locate more precisely some sources of the patterns of change in their attitudes, values, and proficiency in science. This short digression on the panel method takes us

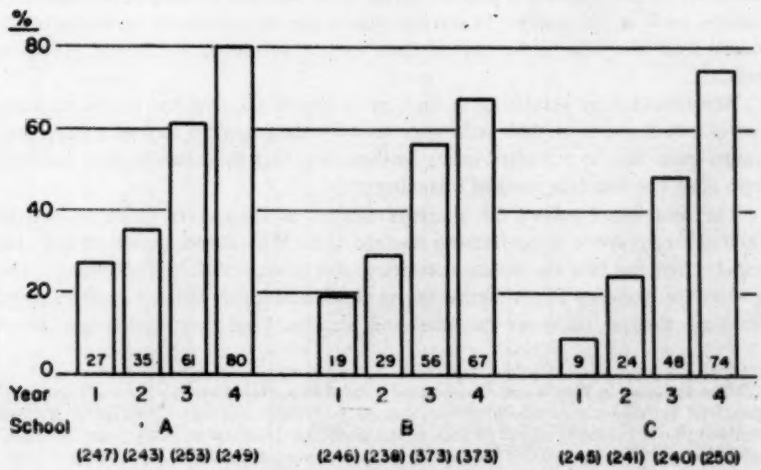

FIG. 9.—Degrees of confidence in making difficult decisions

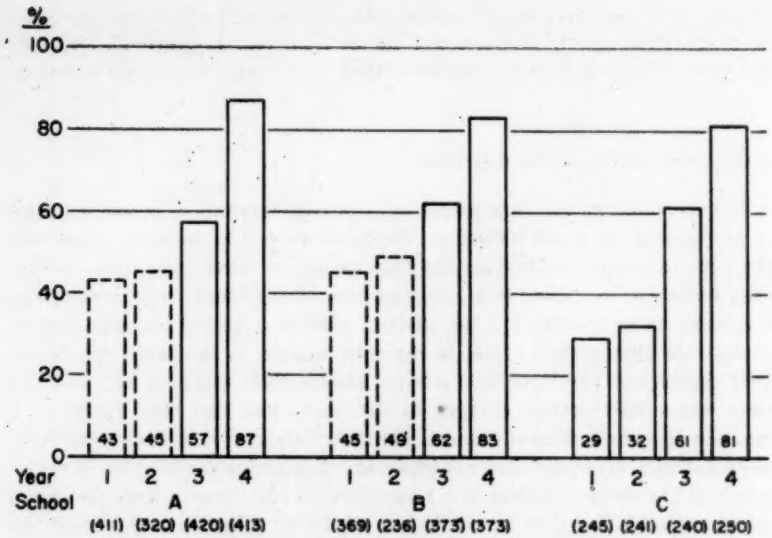

FIG. 10.—Self-images of students as physicians vis-à-vis patients

a little ahead of our story; let us return to examine some average changes in the self-appraisal of the same students as they move from one year to the next during their four years of medical schooling.[12]

Figure 9 shows the growth of a sense of technical competence. In each year, students were asked to report the degree of their confidence in being able to cope with a variety of problems and procedures, these ranging from doing a venipuncture to dealing with a patient having a serious and irremediable disease. It should come as no surprise to see the steady rise of confidence as students advance from one year to the next of their medical education in each of the three schools.

Nor should it be surprising to find, as in Figure 10, that the longer students are in school, the more their self-image vis-à-vis the patient is that of a physician, rather than that of a student only; furthermore, that this change gains momentum after the first two years of schooling.

The next figure relates the students' images of themselves as physicians to their self-confidence in performing medical tasks.[13] It shows, as we should also expect, that the two are closely connected: the greater their self-confidence, the greater the tendency to see themselves as physicians rather than as students only. Findings such as these are expected and obvious. Had they turned out other-

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[12] The materials in Figs. 9 and 10 are based upon data analyzed by Mary Jean Huntington as part of her monograph, now in preparation, on *Self-Images and Self-Appraisals of Medical Students;* for a published report on part of this study, see Huntington, Mary Jean, "The Development of a Professional Self-Image," in Merton, Reader, and Kendall, *op. cit.*, pp. 179–87.

[13] We are indebted to William Martin for the data; for a published report on part of this study, see William Martin, "Preferences for Types of Patients," in Merton, Reader, and Kendall, *op. cit.*, pp. 189–205.

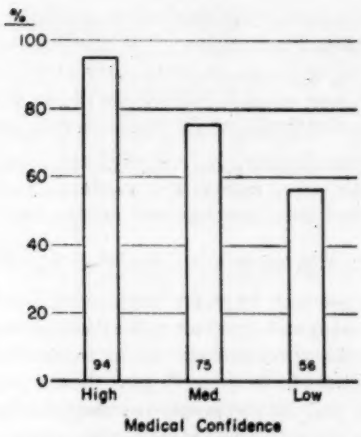

FIG. 11.—Index of self-confidence in performing medical tasks related to self-image as a physician.

wise, the misgivings of some people about the worth even of carefully developed and standardized questionnaire materials would have been amply reinforced.

When we move from the growth in professional confidence and of professional identity to values associated with the practice of medicine, we move from secure ground to an area in which speculation is frequent and dogmatic opinion not uncommon. The next graph (Figure 12) shows the change from third year to

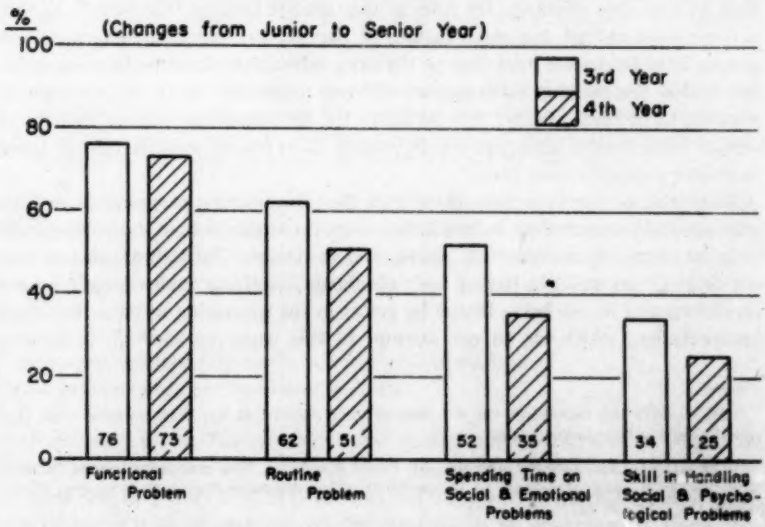

FIG. 12.—Changing importance assigned to social and psychological factors in medical care (changes from junior to senior year).

fourth year in the value assigned by students to particular practices involved in the practice of comprehensive medicine. (The questions were not asked of students during their first two years of study, since they apply to clinical situations.) These students were asked to indicate the degree to which they approved or disapproved of classmates who would engage in such practices as these:

1. express a desire to discharge a patient who has a functional problem
2. show little or no interest in patients with routine medical problems
3. do not spend a lot of time exploring social and emotional factors when taking a history
4. show no skill in handling the social and psychological problems of patients[14]

We would remind you that these are students in excellent medical schools where there is a concerted and, from all indications, generally effective interest in teaching the principles of comprehensive care in medicine.

As you can see, students in their fourth year show a small but consistent decrease from the third year in the proportion disapproving of classmates who depart in practice from the principles taught in the medical school (Figure 12).[15] The significant point is not the magnitude of the change, which is small throughout, but its direction: these students attach less significance to the norms of comprehensive care in the fourth than in the third year of study. This tentative finding must be seen in perspective. It does not necessarily indicate that programs of training in comprehensive care are ineffective. It may only indicate that seniors are readier than juniors to accept departures in practice from strict adherence to particular norms governing comprehensive care, in the belief that their classmates are enough imbued with the principles and orientation of comprehensive care that they can be counted on to act in basic accord with them even when they seem to neglect one or another detail. It has often been observed that novices cling closely to the rules as they are set forth in "the book." As they become more skilled and more certain of themselves, seasoned performers will not hesitate to depart from this or that rule when they know with some confidence that the seeming infringement will not materially affect the outcome. It remains to be seen whether this accounts for the somewhat smaller number of seniors than juniors disapproving departures from one or another rule designed to ensure comprehensive care.[16]

Moreover, to conclude from these data that the training programs have little worth would be equivalent to concluding from the earlier sets of data that physicians are typically extroverted, placid, and dominant. The indications are that our findings are valid in having been obtained objectively under largely known conditions and in not being biased by errors in the processing of data. But their interpretation, which we do not attempt in this paper on method, is another

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[14] To simplify the exposition, the wording of these statements has been reversed from that actually used in the questionnaires.

[15] The data are for a paper presented by David Caplovitz, "Value-Orientations of Medical Students and Faculty Members," at the meetings of the American Sociological Society, Washington, D.C., August 1957.

[16] Figure 12 is based upon the proportion of agreements. The decrease is attributable not to an increase in the number disagreeing but to a shift from agreement to "doesn't make any particular difference one way or another."

matter. We have been looking only at scattered bits of data abstracted from the immensely complicated social process of medical education. Quick conclusions from such specimens of findings are apt to be not only hazardous but irresponsible. It would be as though a reporter from one of the more lurid newspapers would rush from the room to write an article headlined: "medical students more Machiavellian than Washington lobbyists" or "medical students dislike patients." If the reporter were from a newspaper that tries to present only the news fit to print, the headlines might read: "research shows strong interest in patients among medical students."

All this might make news of varying interest to the public, but it would not be science as currently understood and practiced by social scientists. We do not try here to interpret the findings we present in passing, for these are being used only to illustrate the various methods for searching out characteristics of the climates of values in medical schools. This should be kept in mind throughout the rest of our discussion, as we turn to other methods of assessing the climates of values.

Summary: methods 1–4

To this point we have described four related methods for getting at the climate of values:

1. Finding the distribution of values among students as these are reflected in the images students have of the qualities of the ideal physician, these being ascertained by projective measures such as the Osgood Semantic Differential.
2. Comparing the distribution of selected values held by medical students with that of other groups—college students, businessmen, and lobbyists in this instance—through use of measures such as the scale based on Machiavelli; the findings being partially validated by having a faculty member well acquainted with students independently identify students at the extremes in respect to this set of values.
3. Inferring the values in a school by examining the values characteristic of students who have been selected by their fellow students for important representative roles.
4. Using the panel method to discover which values of students change most the longer they remain in the climate of values afforded by their school.

These measures, it will be noted, all refer to the values held by students. But it is the faculty who presumably do most to establish the climate of values in a medical school, and this requires us to ascertain the values held by the faculty and to relate these to the distribution of values held by students.

5. Importance assigned by faculty to social and psychological factors in the etiology and treatment of illness

All members of the clinical staff in one medical school were asked to reply to some of the same questions that had been put to the students: How much importance did they attach to skill in handling the social and psychological problems of patients when they judged the competence of physicians in their own specialty? How would they react to a fellow physician who wanted to discharge a patient suffering from a functional problem? How would they react to a fellow

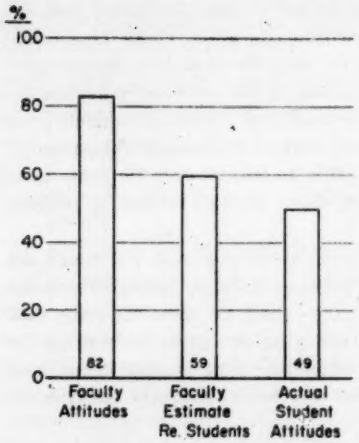

FIG. 13.—Selected attitudes among medical faculty and students; also faculty estimate of student attitudes.

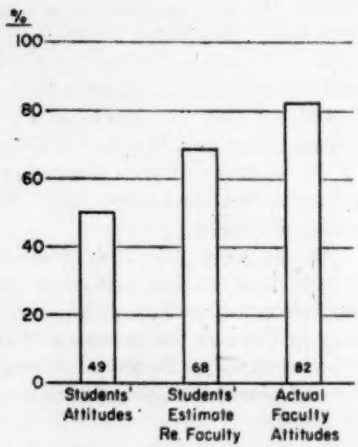

FIG. 14.—Selected attitudes among medical faculty and students; also student estimate of faculty attitudes.

physician who spent much time exploring social and emotional factors in taking a history? The replies were combined into an index of concern with social and psychological factors in illness, just as had been done with students.[17]

The faculty were also asked to indicate their judgment of students who engaged in such behavior. Figure 13 shows, first, that a large majority of the faculty, in contrast to only about half of the students, attached importance to social and psychological factors in illness. Second, the faculty set much higher standards in this respect for the students than the students apply in their evaluations of one another.

This disparity between the distribution of values among the faculty and the students may be disconcerting to those in medical education, but it should not be surprising. After all one function of professional education is to set high, perhaps ideal, standards for the profession; it does not follow that students will at once and uniformly adopt these standards. Osler was not alone among medical teachers in recognizing the difficulties that physicians, like others, face in living up to the standards which the best of the profession set for the rest of the profession: "Not that we all live up to the highest ideals," he said, "far from it—we are only men. But we have ideals, which mean much, and they are realizable, which means more."[18]

There is a further obvious possibility that might account for the discrepancy between the values teachers expect students to hold and the values students actually hold. It might be that many of the students simply do not know the values of their teachers. This possibility was checked by having students indicate how they thought most of their teachers wanted students to deal with social and

[17] Data drawn from Caplovitz, *op. cit.* The data in Figure 13 are based upon an averaging of the various questions.

[18] Sir William Osler, *Aequanimitas* (Philadelphia: Blakiston Company, 1945), p. 119.

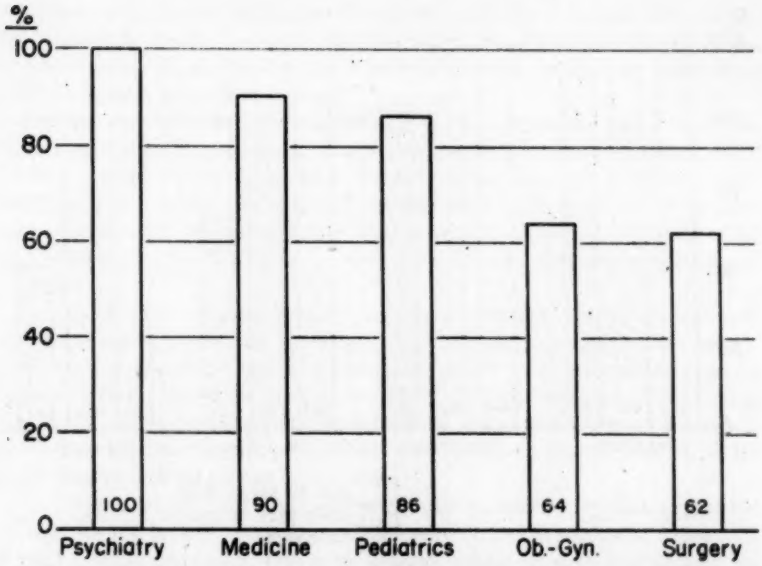

FIG. 15.—Percentage of departmental faculty members attaching great importance to social and psychological factors in medical care.

psychological factors in illness. Figure 14 shows that a substantial majority of students did in fact perceive the values actually held by most of the faculty.[19] It was evidently not for want of knowing the faculty's outlook that so many students failed to adopt the same values.

But this is only a first approximation that provisionally assumes the climate of values is uniform among the various departments and on the various levels of the instructional staff. The analysis must now be carried one step further, for we cannot assume that there is in fact a single climate of values of this kind.

6. Identifying differences in the climate of values among departments and levels of instructional staff

As we might expect, and as Figure 15 shows, distinct differences in the importance assigned to social and psychological factors in disease are found among the clinical departments. All the psychiatrists and almost all members of the departments of medicine and pediatrics attach importance to these matters, with substantially fewer doing so in the departments of obstetrics and gynecology and of surgery. This accords with generally held impressions. Of perhaps greater interest is the picture that emerges when we examine the distribution of values within each department among men of differing academic rank. Here we see distinct patterns in the several departments (Figure 16). The departments of

[19] Data for this figure and for Figures 15 and 16 are also from Caplovitz, *op. cit.*

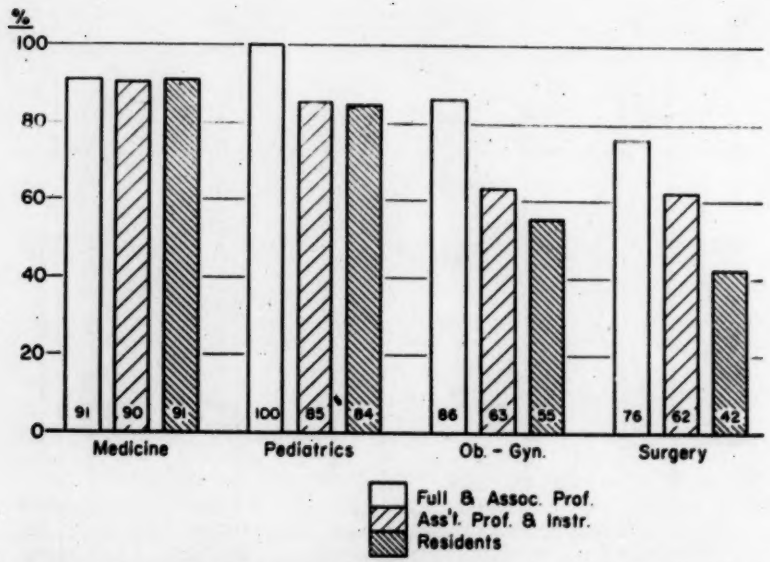

FIG. 16.—Percentage of departmental faculty members by rank attaching great importance to social and psychological factors in medical care.

medicine and pediatrics, where there is general agreement on these values, exhibit negligible or no differences between the full and associate professors, the assistant professors and instructors, and the residents. In the departments of obstetrics and gynecology and of surgery, where these values are less widely held, the higher the academic rank the more extensively is value attached to consideration of social and psychological factors in illness.

Such findings, which are at the moment confined to only one school, suggest that the value climate is not uniformly pervasive but varies by department and rank. This provides a clue, but does not answer the question why, as we have seen, students have become less widely committed to these values in their passage from the third to the fourth year of study, when they are presumably more fully exposed to these values. The puzzlement is deepened by other evidence. Each student was asked to indicate the members of the faculty he particularly admired as physicians, as teachers, and as researchers. Overwhelmingly it was the men in the upper academic ranks who were chosen, that is, the men who as we now know are most generally committed to the principles of comprehensive medicine. Evidently students' admiration of them did not necessarily extend to their adopting these particular values and orientations. The professors are admired, but not necessarily emulated.

The explanation may lie, although we cannot yet say with assurance, in the structure of personal relations with various levels of the faculty. The head of the department of surgery may be deeply admired, but often from afar. The sustained personal contact of students in their fourth year may more often be with men in the lower reaches of the instructional staff, men who in certain depart-

ments as we have seen are less apt than their superiors to adopt these values. Yet it must be added that even here the values do not uniformly rub off on students, since even the residents are more widely committed to these values than are the students themselves.

Perhaps many students, anxious to learn specific techniques and procedures, do not dare allow themselves to attach great importance to these other, more subtle and often less easily codified, elements in the practice of comprehensive medicine. It is perhaps only later that the *delayed acceptance* of what they have learned is actually incorporated into their scheme of values—a possibility that can be explored by following them into their graduate education as interns and residents.

As you have probably gathered by now, social scientists are a persistent and, we like to think, a properly skeptical lot. We listen patiently to what people, including physicians and medical students, tell us but we do not confine ourselves to what is said. Whenever possible we try to find out what people, including physicians and medical students, do *not* tell us, because it seems so obvious to them that they assume even a psychologist or sociologist should know it, or because they themselves are not aware of it.

To supplement the interview and questionnaires, which are valuable but not enough, we try to observe what people actually do in the setting in which they normally fulfill their roles. One such valuable source of data was afforded by the notes jotted down by members of a committee on admissions as they interviewed applicants. By comparing the applicants who are variously evaluated, we can make inferences about the values of those who man the gates to the medical school. Often we can then check how far these values correspond to those found in the school itself. One school, for example, afforded striking evidence that among the values held by medical students themselves were the values attached by the admissions committee to the personal appearance of the applicant—to his being handsome, cleancut, extroverted, mature, self-confident, and readily expressive.[20] Students who were confidentially rated in the top half by the admissions committee tended *several years later* to be disproportionately nominated by their student peers as suitable for representing the school at a national conference of medical students.[21] To have such confirmation between disparate sets of data strongly suggests that both groups—the admissions committee and the students—tend in this degree to have the same image of the exemplary medical student.

We should pause here to consider the significance of this composite set of data. In part the data are drawn from the ongoing institutional processes in the medical school itself, quite apart from our investigation. These are the facts about some of the criteria employed by the committee on admissions to screen suitable from unsuitable candidates for admission. In part the data are drawn from the sociological field inquiry and would not be available were they not so collected. These are the facts about the selection of students to serve as representatives of

[20] We focus on this set of criteria only to illustrate a procedure of analysis. It should not be inferred from this temporary focus that these criteria of personal appearance were decisive in admitting or rejecting candidates, for this would be contrary to fact.

[21] These data were analyzed by Williams Nicholls.

the school. By combining institutional and field data in this way, we can connect our findings with the processes through which the institution itself operates and can indirectly validate the sociological field data. Periodically through the rest of this paper we shall therefore employ this technique of integrating data derived from institutional processes and data derived from our field investigations. It is our opinion that the sociological study of medical education will be more effectively advanced by continually bringing together data of the two kinds.

On the basis of the two types of evidence in hand, we tentatively inferred that on the nonintellective side value is attached to prospective physicians being gregarious, outgoing, and sociable. This is nothing new; you will all remember Osler's repeated advice to students: "mix with your fellow students, mingle with their sports and their pleasures." You will also remember the numerous cases of eminent physicians and surgeons who, during their undergraduate days, were notable more for their interest in sports and social clubs than for their interest in the library. Halsted, for example, was described as "a crew man and captain of the football team, and a poor student who never charged a book out of the Yale library."[22] In like fashion there is Fulton's observation that Yale certainly did not make "a serious student of [Cushing], for he was more interested in baseball, the social contacts of the Fence, and the 'gym' than he was, for example, in the library which, surprisingly enough, he confessed to having visited only once in his four years."[23] The point of this is not, of course, that the prime requirements for subsequent greatness as a surgeon are to attend Yale, to make the crew or baseball team, and to avoid the library like the plague. But these few well-known instances may illustrate some aspects of the "late bloomers" and the consequent concern on the part of committees of admissions not to overlook them and, as our data show, to attach some importance to extroversion and sociability.

To see how all this is reflected in the tacit values of a medical school, we turn to more systematic evidence. As we noted before, the clinical faculty in one school graciously gave enough of their time to fill out a detailed questionnaire, which includes this question: "Could you please identify three or four outstanding students you have taught in the last three years who you think show promise of becoming particularly good physicians?"

The procedure here, once more, is to get at tacit values by examining the characteristics of those who have received the stamp of approval, this time by the faculty. We thus deal not with the few who make up a committee of admissions, and who may or may not represent dominant values in the school, but with consensus among the many who are engaged in teaching physicians. More than half the clinical faculty—57 per cent—made no nominations of prospectively outstanding physicians, although they filled out the rest of the questionnaire, because they felt they did not know enough about enough students to do so.

Since we have a great deal of information about students in this school, we

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[22] Fleming, Donald, *William H. Welch and the Rise of Modern Medicine* (Boston: Little Brown, 1954), p. 63.

[23] Fulton, John, *Harvey Cushing: A Biography* (Springfield, Illinois: Charles C Thomas, 1946), p. 37. Fulton corrects Cushing's memory by producing documentary evidence that Cushing had entered the Yale library at least twice.

were able to compare those singled out as having, in the judgment of the faculty, greatest promise as physicians with the rest of the students. We cite only a few results to bring out the way in which this casts some light on the value system of the school.

There are gradations of difference between the nominees and the others (Figure 17). The first of these was grades in medical school.[24] Among the senior class, a resounding 91 per cent of those in the top quartile of cumulative grades were named by some faculty member as having great promise as a physician. This fact is (to us at least) more striking than would at first appear, for the nominations were made without the faculty members knowing the student's grades, which are kept confidential by being securely locked in the office of the dean of students.

Even more revealing is the further fact that 82 per cent of students who had been in the upper quarter of their class during their first year of medical school were nominated three years later as potentially outstanding physicians by some member of the clinical faculty. We should add that we find close statistical relationships between grades in preclinical and in clinical courses. This may reflect the fact that the same values and standards of the faculty and somewhat the same abilities of the student are found, in this school, in the organization and presentation of a laboratory report and of a clinical report.[25]

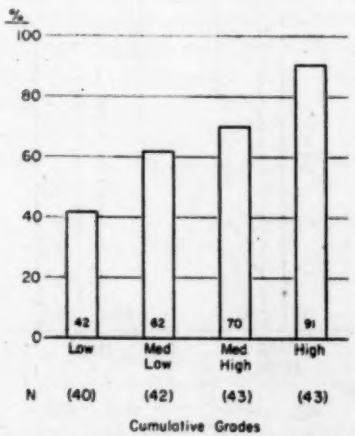

FIG. 17.—Faculty nominations of students as potentially outstanding physicians in relation to student grades.

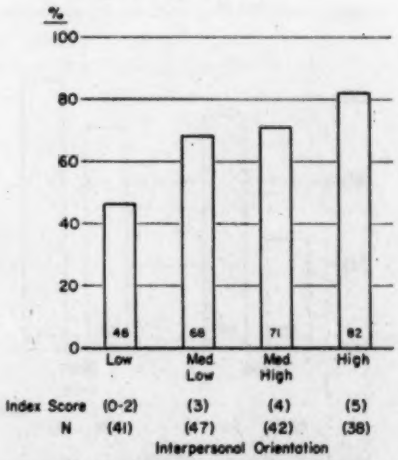

FIG. 18.—Faculty nominations of students as potentially outstanding physicians in relation to interpersonal orientation.

[24] The data in the following figures are from a paper by Richard Christie and Stanley Budnitzky.

[25] This finding is true of at least one other medical school as well as this one. A factor analysis by William Nicholls of the correlations of grades in both the preclinical and clinical years in another school found that a single factor accounted for most of the variance.

Although there is a substantial relation between grades and nomination as a prospectively first-rate physician, grades are by no means the only factor involved. Over two-fifths (42 per cent) of senior students in the bottom quartile (cumulative grades) of their class were also nominated. We did find, however, that gregariousness and sociability—what we drably describe as interpersonal orientation—does distinguish them. An index of the value placed upon mixing with others was composed of indications by the student of the importance he assigns to getting along with faculty and fellow students and to leisure-time activities. The gregarious man was the one who went out on dates, did not spend much time reading serious books or journals, and did not engage in solitary hobbies. (Note that we do not say that this complex of activity is desirable; we only use these items as a rough measure of sociability.)[28]

As is seen in Figure 18, the higher the index of sociability (or interpersonal orientation), the higher the proportion of students nominated by faculty as prospectively outstanding physicians. And now we come to a not uninteresting result. Although, as we have seen, both cumulative grades and sociability are

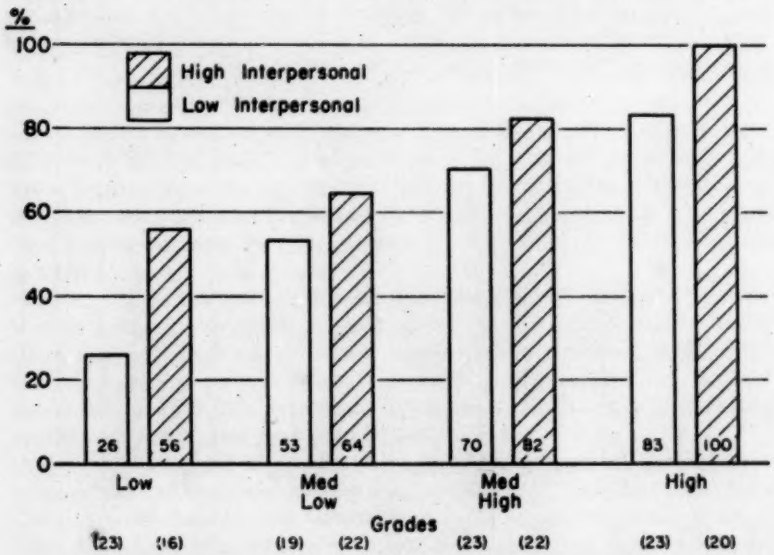

FIG. 19.—Faculty nominations of students as potentially outstanding physicians: grades in relation to interpersonal scores.

[28] According to the data compiled by the research staff of the Association of American Medical Colleges, 75 per cent of a cross-sectional sample of medical students report reading four or fewer nonmedical books a year (Table 4.30 in Chapter 4). It is therefore of interest that even within this highly restricted range of reading, differentiation of students occurs in one of the items making up this index.

Available data do not indicate whether this concentration on professional reading occurs only when they are medical students, or persists when they become medical practitioners. The great emphasis on reading professionally relevant materials might merely reflect the intensive training in medical school.

separately correlated with nominations by the faculty, they are not correlated with one another, as Figure 19 shows. Note that *every one* of the 20 students who were both in the upper quartile academically and in the upper half in the index of interpersonal orientation is chosen by at least one faculty member as a prospectively outstanding physician.

If a student is in the lowest academic quartile, he is twice as apt to be nominated when he stands high rather than low on the index of interpersonal orientation. The graph has been condensed for easier comprehension; actually, the six students who rated in the bottom quarter both on grades and the index received no nominations at all.

These results are based on either the presence or absence of faculty nomination. The picture is amplified if we turn to the actual number of nominations a student received from the faculty, as is reported in Figure 20. As you see, there is a marked connection between grades and the number of nominations, and an even more marked connection between sociability and the number of nominations. Students in the upper academic quartile who also rank high in sociability receive far more nominations than their fellows of like academic standing but of low rank in sociability. And so again on each plane of academic performance the gregarious, outgoing student is consistently more often singled out by the faculty as having distinct promise as a physician.

We infer then that at this school—and we believe but do not know that this is true of medical schools generally—the values in terms of which the faculty judge the professional promise of students are largely composed of competence, as reflected in grades *and* of the outgoingness of the student. Equally in point is the

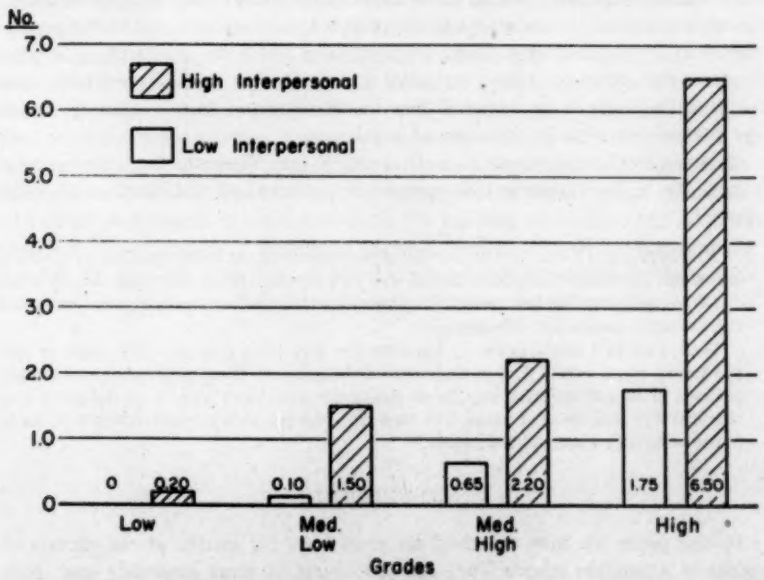

FIG. 20.—Student standing in grades and interpersonal scores and number of faculty nominations as potentially outstanding physicians.

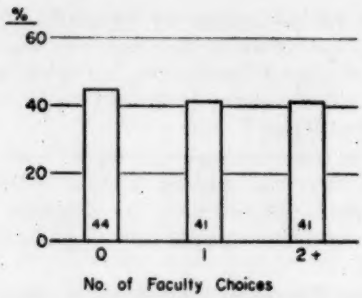

FIG. 21.—Importance attached to social and psychological factors in medical care among students nominated by the faculty.

fact that the values of the faculty centering on the management of patients, values incorporated in the teaching program, do not significantly afford the basis for their evaluation of the professional promise of students, at least under the conditions of interaction between faculty and students that currently obtain. This can be seen in Figure 21. Here, it will be noted, the students receiving more nominations are on the average no different from those not nominated at all in their commitment to the values declaring the basic importance of the social and psychological components of medical care.

A plausible but still unverified interpretation of this finding, and similar findings not reported here, is that the evaluations of students by faculty are based on the outcome of the treatment of the patient by the student, not on the process that leads to this outcome. Some students may be highly dominant or brusque in managing patients; others empathic and understanding. Whatever the procedures, they may be approved if they are effective and do not seriously violate the norms governing the behavior of physicians.

The comments of a senior in medical school may illustrate the wide range of variability in the allowable management of patients and the lightness of social control:

> At this point, if I feel that any of my classmates were not being gracious in handling a patient, I'd do no more than hint at it. . . . I wouldn't blast them out or anything.
>
> (When you say "at this point," do you mean that earlier you might have handled the situation somewhat differently?)
>
> Well, I guess I might have . . . but now, the way I see it at any rate, most people are pretty much established in their clinical habits. . . . They tend to approach their patients in an authoritative way, in an apologetic submissive way, in an unfeeling mechanical way, and so on. I mean, I've seen the same people approach different patients in the same way time and time again.[27]

CONCLUSION

In this paper we have examined six procedures for getting at the climate of values in a medical school. They are procedures of some generality and, with

[27] From an interview by Dr. Renée Fox.

modification, can be adapted for studying the value climate of other types of institutions as well. In quick summary, these are:

1. Finding the distribution of values among students by having them indicate their images of qualities characteristic of the ideal physician.
2. Comparing the values held by medical students with those held by other groups.
3. Inferring the value climate by examining the qualities and values of students selected by their fellows as suitable representatives of the school.
4. Using the panel method to discover how the values of students change the longer they remain in the climate of values characteristic of the school.
5. Uncovering variability in the value climate by comparing the distribution of values among the faculty of different departments and of different academic rank within each department.
6. Finding the distribution of values among the faculty both through direct affirmations and indirectly through their selection of students with greatest promise as physicians.

Other procedures for identifying the value climate are being developed but are not reported here. We repeat that the climate of values is only one part, although an important part, of the environment provided by the medical school; another consists not of the cultural values but of the structures of social relations that obtain in the school. This latter part of the environment has been considered only in passing.

And now we should like to say a final word about some of the lessons we have learned in collaborating on research with those in medical education. We think the work moves ahead effectively if each group adopts an attitude toward the other not necessarily of enthusiastic accord but of benevolent skepticism.

Furthermore, we think it important that some medical faculty members disengage themselves from their images of the sociologist. Contrary to the beliefs of many, it is not our function to teach medical students how to acquire tact, sympathy, and compassion for patients. We know no more and no less about that than anyone else, except in the sense in which understanding may have the side effect of producing sympathy. Nor is it our function to inculcate, in students or physicians, a sense of social responsibility, however important that may be. Sociologists are probably no better and no worse citizens than medical educators.

In short, sociologists are not surrogates for teachers of social ethics or civic leaders. It is our function to engage in scientific investigation of the organization of social life, and once this is understood much can come, we believe, from continued collaboration of sociologist and medical teacher for this purpose.

CHAPTER 7

Commentary from Medical Education on the Sociological Studies

THE PRECEDING CHAPTER has discussed the procedures used by the social scientists and shown some highlights of their study of the values climate of the medical schools. The purpose of this chapter is to present some commentary on these sociological studies by people in academic medicine. It is divided into two sections: (A) an overview of some implications of the sociological studies by Dr. Julius B. Richmond and (B) the Institute participants' general discussion from the floor following Dr. Robert K. Merton's presentation of the Christie-Merton paper.

A. Some Implications of the Sociological Diagnosis

BY JULIUS B. RICHMOND

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State University of New York, Upstate Medical Center, Syracuse

THROUGH THESE Teaching Institutes and the self-study going on in each of our medical schools, we in medical education are looking at our objectives and attempting to determine whether we are actually fulfilling the expectations we hold for ourselves. The sociological studies reported at the 1957 Institute represent one of these attempts at an objective look at our efforts.

Although the investigators, as we have seen, are making no value judgments concerning their data, I suspect that many of us are—in somewhat healthy fashion—a little bit uncomfortable. It is as though we have been subjected to a group Rorschach test in which some of our blind spots are made evident. I hope our score on "resistance to objective study" will not be found too high, for it would appear to me that defining how we are and are not attaining our stated objectives is the area in which such studies have greatest significance.

In their introductory remarks Dr. Christie and Dr. Merton indicate that the extent to which the individual student utilizes his potentialities is affected by the environment the school provides for him. It is important for us, as we engage in our post-Institute discussions to concern ourselves with the environment and realize that the student as a person can be influenced. Our interest must be with interaction, with what in other circles might be termed a feedback between students and environment. Because some of us come from more predominantly biological backgrounds, we might think of one model to illustrate this point: a model we might draw from biochemistry in which the medical school and its environment is one force interacting with the student as the biological substra-

tum, and if we think of the faculty and its structure as coenzymes that drive this reaction, I think we can see the student emerging on the spectrum of values that Dr. Merton has spoken of. Whether the values are stated in terms of dominance-submission, extroversion-introversion, or another dimension, the faculty might be conceived of as driving the reaction one way or another.

Some of the confusion we get into in our discussions is the near lack of language that we have for describing interaction, and I think that one of the lessons we can learn from the sociological studies is that there are ways of overcoming some semantic difficulties. If we cannot describe and tease out all of the interaction, we can at least get some measurement of the problems of this interaction in terms of the cultural values.

No new implications for medical education were made on the part of the sociological investigators reporting at the Institute. As medical educators, however, we are concerned about implications, and as scientists we are impressed with the consistency of the data. We note the students' composite of themselves as one of extroversion, slight emotionality, dominance, and a smooth exterior appearance; we note the high degree of Cynicism on the Machiavellian scale, which tended to be confirmed by observations of a faculty member; we note the drop in interest in comprehensive care as the student advances in medical school. We observe that what transpired in the educational process may be quite at variance with our stated objective and that the faculty to some extent may exemplify standards and objectives that students may admire but not emulate.

One can raise certain questions with Dr. Merton concerning some of the implications of these over-all findings. Four of these questions are printed below with commentary by Dr. Merton.

1. Values of medical students vs. those of others

Does the culture outside the medical school have more influence on the student than that within? One might raise the question that perhaps some of the students' values would not be found too different if they were compared to those of students with whom they graduated from college and who did not go into medicine.

DR. MERTON: *I would like to underscore Dr. Richmond's first point: inquiries into the ecology of the medical student must be supplemented, over the long run, by comparable inquiries in other professional schools. Lacking such comparisons, we have no way of knowing (1) to what extent the observed behaviors and values are characteristic of American society and culture in the large and (2) to what extent they are distinctive of medical schools. Perhaps the society uniformly or diversely affects people going into the professions in much the same way. By concentrating only on the one type of school, we may get a foreshortened and distorted impression. Comparisons between different professional schools can indicate what is common to them all and what is distinctive of each.*

2. The problem of multiple consequences

Another question that I would be interested in hearing Dr. Merton speculate on is whether thé medical school environment, although designed ostensibly to

achieve certain results as expressed by faculty members, not uncommonly accomplishes other results.

DR. MERTON: *The second point Dr. Richmond makes is one absent from our paper, but it is one of the unspoken assumptions of our entire study. No matter how meticulous the report on observed consequences of this or that development in medical education, it should be recognized as a limited report. We should therefore be alerted to the possibility that we have neglected to examine some of the more significant consequences.*

At times our report might have given you the impression that we deliberately selected attributes of the "ideal physician" that are of only secondary importance. But since this was a report on methods, we did not focus on findings that may be of most direct substantive significance to the medical educator. Nevertheless, the point remains that the social scientists must be alerted by physicians and medical educators to types of consequences that, in their judgment, are of primary significance both to the institution and the individual student.

3. The illusion in short-term inquiries

A question related to the above is whether or not the stress of adaptation to the medical curriculum and to the care of sick patients maximizes the development of certain defenses within the student that we at times believe to be unfortunate. I say at times advisedly because Dr. Merton was very careful to point out that the student following graduation may at some point come back to the values we would tend to hold for him.

DR. MERTON: *Dr. Richmond's third point is one that deserves consideration in our further deliberations on the ecology of the medical student—the possibility of a built-in illusion in short-term inquiries. By looking only at the short-term results of education, here and now, by examining the medical student only while he is still a student, we learn nothing about delayed responses to his education. It would of course be a serious and prejudicial assumption to hold that if some parts of the education don't take at once they don't take at all. It is a matter for inquiry, not a matter for assumption. That is one reason why the Columbia studies of medical education are now being extended into the period of internship and residency.*

4. Deviants from the "ideal physician"

Another question that I would like to raise is whether the intensive study of those students who did not develop into the composite picture of the "ideal physician" might provide many more valuable insights in terms of where we in medical education may move in the direction of achieving our objectives with greater effectiveness.

DR. MERTON: *Finally, I want to echo Dr. Richmond's observation that results such as ours deal with modal behavior and comparative frequencies. Not all students behave in the same fashion. We must avoid confining our attention to those who behave in the modal fashion and consider the deviant cases as well.*

As a clinician I would tend to think of this study as one analogous perhaps to our study of a patient. We listen to symptoms and design a diagnostic approach. In essence medical educators have come to social scientists with symptoms and have asked for diagnostic studies of their institutions. As we emphasize to our students, however, diagnosis should come before treatment and our social scientists are providing us with diagnostic tools to help us determine whether we are realizing the objectives that we explicitly state we are seeking. If we are not attaining these adequately, perhaps we ought to consider some therapy, but this leads into other considerations.

The medical schools have developed into instruments of the society of which they are fashioned. Presumably they have developed in a functional manner; that they have fostered medical progress and medical care to the highest level yet known is beyond doubt. It is important to observe that we do not yet know how to manipulate complex social institutions to achieve the desired results; yet to be uncritical of ourselves is to minimize progress. Certainly, there exists what the cultural anthropologists refer to as a cultural lag in our scientific and educational communities. In our rapidly changing world we must continually reevaluate our culture in an effort to maintain the highest possible degree of effectiveness in serving the society in which we live and work.

B. General Discussion by Institute Participants

THIS SECTION OF Chapter 7 presents further commentary from those in medical education. It is devoted to the discussion from the floor that ensued at the Institute on the afternoon of Dr. Merton's presentation of the Christie-Merton report on sociological studies in medical education.

DR. ROBERT H. WILLIAMS (Professor of Medicine, University of Washington School of Medicine): I'd like to ask Dr. Merton how he quantified the importance assigned by the faculty to social and psychological factors in medical care. I am inclined to believe that if most of my colleagues and I were asked about these factors we would say that these are very important factors but that the degree of importance we attach to them is distinctly out of proportion to the amount of time we spend in dealing with them. I am also inclined to believe that if it were demonstrated to the students how much one could accomplish in these areas, they too would rate them higher.

DR. ROBERT K. MERTON: First, we obtained crude measures of the importance ascribed to these factors by presenting members of the faculty with an array of hypothetical and actual situations and asking them to indicate their approval or disapproval of specific practices; then we combined the replies into an index. The important thing that I want to stress is that we were here concerned exclusively with the attitudes expressed toward the social and psychological components of medical care. We were not concerned at the moment with the actual behavior of faculty members.

Along with the data on attitudes, we have further observations and further information from the students about what they claim they see in the actual per-

formance of their clinical instructors. You will also recall from the pre-Institute research compiled by Dr. Helen H. Gee and her associates the statistics showing the considerable portion of students who claim that the clinical professors do not live up to their own precepts. Now when you combine these materials you have the possibility of seeing how far expressed attitudes coincide with the behavior imputed to clinical faculty by students. This behavior may often run counter to what the professor regards as the ideal, just as you say. This may be a missing link, helping to explain discrepancies between the values held by the faculty and the values held by students, even by those who admire the faculty members having these values.

I should repeat what was said in Chapter 6: this is a paper on procedure and method, not a presentation of substantive findings. Had it been a report on findings, we would have taken one set of results and tried to explore it thoroughly.

Your question and comment brings out very clearly the distinction between attitudes and ideals that may be held by members of the clinical staff and actual practices in situations where they cannot readily live up to these standards. This raises the intriguing and important question of whether the basic education that goes on in medical school is primarily in terms of what students observe in the behavior of the faculty or in terms of what they are taught didactically.

The other side of the coin is also relevant. We have some evidence that students who say they don't attach value to the social and psychological implications of illness sometimes demonstrate great concern with these in their actual dealings with patients. Here, behavior may outrun attitudes. We have tentatively supposed that this comes about in the following way. When students are taught a method of approach to patients that includes concern with social and psychological factors of illness and medical care, they may automatically include this in their practice even though they may maintain that it is not of primary importance. For instance, in taking a history they may get the needed information from the patient and take it into account, even when they believe that it is of only minor importance. Standardized practices may themselves incorporate underlying values current in the schools.

Dr. Aura E. Severinghaus (Associate Dean, Columbia University College of Physicians and Surgeons): I want to call attention to two studies, one of which has given me some concern and another that has given me some comfort.

The one that has given me some concern is the Curran study on the attitude of residents to social and environmental factors in the treatment of patients. If I recall correctly he shows that the attitude of the resident as judged from the type of history he wrote on the patient followed very closely that of the chief of the service. The disturbing thing about it is that when he changed from one chief of service, who had what we might call a proper attitude toward these values, to another one who had little concern for them he was very apt to follow in his histories the one who had no concern. What concerns me is that the man acts in accord with the environment he happens to be in. What will he do when he is out creating his own environment?

The other report, I believe, is one by Allport on Harvard students in respect to their attitude toward religion. I think he started out to discover the effect of the college environment upon the attitudes that these students may have brought with them from their own homes.

He found at that time that although the attitudes of students were greatly changed while in college, when they were followed up 10 years later, as I recall, their attitudes again seemed to swing back to the ones they had developed under the long tutelage they had in their homes. I am just wondering whether this won't be true also in studies such as this, that we are measuring their attitudes while they are in school. The really comforting and important question probably is: what will their attitudes be 10 to 15 years after they are out of school?

Dr. George G. Reader: We certainly couldn't agree with you more, Dr. Severinghaus. Many of us have the impression that the value climate in residency and internship is a much more intense affair than it is in the medical school. Whether it is so intense that it has a more permanent effect on the individual is the question. It is an artificial kind of environment for a physician in the sense that during a large part of his professional life he will be dealing with ambulatory patients in his office. It may be that the kind of value environment that the medical school creates in dealing with ambulatory patients particularly will be something that the student will revert to when he finds himself in an office practice. That is what we are at present hoping.

Also, we have hopes that we can find out whether there is a significant change in the student's stated values while he is in this internship-residency environment and whether these change again when he leaves it or whether he holds some of them indefinitely. They may be dysfunctional for some of the values that we would like him to have. Also, if he has a poor chief in terms of the values that we think may be important to a physician, will this damage him or will he merely hide some of his values until he is able to function as he has been taught, or perhaps as he is basically inspired to do?

Dr. Merton: If I may add a sentence or two to that. The force of what Dr. Severinghaus has said is so great that some of us who have made the decision to work in this field are now proposing to go ahead and find out which of these numerous alternatives occur under various conditions. It is our plan to follow those students about whom we have learned something during their four years of medical school through their periods of internship and residency, and ultimately perhaps into their early years of practice.

We are persuaded that we shall find various patterns of effects. Some graduates will remain autonomous and practice comprehensive medicine even in unfavorable settings, such as the one you have described when they are under one chief of service rather than another; others will modify their practice as their environment shifts.

We want to find out what can be done in the medical school or during the internship or residency to provide the conditions that make for one kind of behavior rather than another. I am glad you brought out this general point. Nothing in our report necessarily implies that we can now predict the behavior of these men once they leave the environment of the medical school. This requires further study by following the students, about whom we know a good deal, into their subsequent training and practice.

Dr. John Spiegel (Department of Social Relations, Harvard University): I find myself a little confused about the labeling of the so-called Machiavellian

scale, especially in the methodological context of what has been called a value-free or a value-judgment-free method of procedure, because the use of that word Machiavellian certainly raises biases and prejudices that have lots of connotations. It isn't at all clear to me just what that particular thing measures. Does it measure actual Machiavellian tendencies in the sense of a desire of the individual to manipulate others, or does it measure some quality in the medical student that one might call a defense against disillusion or against a sort of an inner idealism? There might be some conflict within the medical student that swings him back and forth between the poles of too much idealism and too much disillusionment. Just what goes into that particular kind of measure is something, since we are interested in methodology, that I think we would like to know more about.

DR. RICHARD CHRISTIE: One of the problems we face in any research dealing with values, as you point out, is the value implications of the descriptive terms used. One of the best examples of such labeling comes from the research reported in *The Authoritarian Personality*. A scale that was developed and named the F scale (for incipient fascistic tendencies) has since been commonly referred to as a scale of Authoritarianism. It is no such thing and was not so described in the original report.

The scale of values we have used is usually referred to, perhaps cryptically, as Mach IV. The IV presents no interpretive problem since this is merely the fourth version of the scale. Mach is an abbreviation for the source of the items, Machiavelli's *The Prince* and *The Discourses;* about 75 per cent of the items are statements made by Machiavelli, or paraphrases of them. It seems appropriate to give credit where it is due. The wording of half of the items is reversed so that agreement with them implies disagreement with statements based upon Machiavelli's writings.

The scale could quite legitimately be called a Machiavellian scale simply because it taps the extent to which individuals agree or disagree with items lifted from Machiavelli. Machiavellianism has invidious connotations built up over the past four hundred years that go beyond mere agreement or disagreement with statements propounded by Machiavelli. Quite frankly, we do not know how to give the scale an accurate value-free label except by using an abbreviation to refer to it.

Generally speaking, scales can be described in two ways. One is in terms of the apparent content of the items. This we can do for this scale, but such a procedure can easily be misleading and raise the kind of problem that troubles you. The soundest procedure is to describe the scale in terms of its correlates with behavior theoretically relevant to the interpretation of the scale, and it is in this area we are now working.

DR. SPIEGEL: I am still not satisfied because I think what we need to know is whether the behavior that is being measured is purely verbal behavior or whether it is behavior the student is going to manifest in action.

DR. CHRISTIE: This is a basic problem in all interpretations of scale results. Research over a period of years indicates that well-constructed instruments based

upon verbal agreement or disagreement are related to nonverbal behavior. For each new scale, however, it requires protracted empirical investigation to uncover behavioral correlates and to specify the conditions under which they obtain. We are working on this aspect of the Mach IV scale now. As you remember, we did find that ratings of a faculty member as to students' behavior were related to scores on this particular scale.

There is a further problem in dealing with value questions. The same item will be responded to in a characteristically different way by members of discretely different samples. The profile of agreement with the various items is different for each group. There are some very interesting differences between business executives and Washington lobbyists that reflect the different social roles they play; the responses of both these groups differ sharply from college students in many respects.

It is my impression, based upon data gathered to date, that different subcultures have distinctive operating value climates. Treating other individuals as objects to be held at bay and dealt with by rules and regulations is more characteristic of the executive; the college students are more apt to emphasize flexibility and what appears to be a facile opportunism. The sample of executives was collected by a psychologist working as a consultant for a corporation. He became intrigued with the test scores on Mach II (an earlier version) since those who scored either *high* or *low* on it relative to their peers were perceived as different by their peers and their subordinates. These perceived behavioral differences, incidently, were not reflected in a battery of standardized psychological tests, which is why this psychologist became interested in this particular measure of values.

I cannot answer your questions precisely. Although the available evidence indicates observable differences in behavior are related to scores on the scale, we have not progressed far enough to spell out the relationships. There was a comment in one of the Institute group discussions about the functional value of cynicism for medical school students. I don't know to what extent it is functional for a student to be cynical and would rather not use the word.

If students are extremely idealistic they might well run into serious emotional problems in medical school—at least some of our qualitative interviews suggest this. Turning to objective data, scores on the scale and pooled faculty evaluations of the clinical performance of students have been examined. The latter were obtained from Dr. Joseph Brozgal of Western Reserve, who obtained unusually comprehensive ratings from the clinical faculty. There was no relationship between scores on Mach IV and the clinical ratings. The student who obtained the highest score among over 2,000 respondents to date was rated as one of the top clinicians. On the other hand, several of the lowest on the scale also emerged as among the best in the clinic.

My tentative interpretation is that there are many ways of patient management that produce *technically* satisfactory results. The clinical faculty usually do not know how the student actually handles the patient. They base their evaluation on ward records, the student's work-up of the case, the way he presents the material in case seminar, and the like. The cure may be accompanied by smothering the patient with love or by near-diabolic bamboozling. As an outside observer, I am struck by how little most faculty know about the interaction of

students and patients. This is the area where scales getting at students' attitudes toward others could be most profitably explored in relationship to predicting behavior.

DR. HAROLD I. LIEF (Associate Professor of Psychiatry, Tulane University School of Medicine): One of the factors that might influence the results on this particular scale is the peer expectations of students. We all know how hardboiled and cynical most upperclassmen try to appear, and it may be that many students try to emulate the upperclassmen.

DR. READER: My own thought here is that this is a measure of realism in the students and that medical students do become more realistic as they go through school; the measure also captures a group that is essentially opportunistic, that might be said to have traits that are not desirable. Certainly it is necessary for the mature physician to have a fairly sophisticated view of human behavior, more sophisticated than the entering medical student usually has.

DR. LEONARD D. ERON: I want to comment on Dr. Spiegel's observation that this is just verbal behavior and may not be related to overt behaviors. Dr. Christie answered that partially. However, I think most of us are sufficiently informed to feel that verbal behavior is like other kinds of behavior and is important because it is the way the people get to know doctors—through their communication with them, through their verbal behavior. We are always dealing with words. Even if we are not psychiatrists, we are still talking to the patients. This is the way the public and lay people get to know who doctors are and what doctors are.

DR. DANIEL H. FUNKENSTEIN: I hate to come back to Dr. Eron's Cynicism, or whatever you wish to call it (Section D, Chapter 1), in this particular constellation of verbal or other attitudes, but I think that one still has to consider that his measure is related to Anxiety measures, and the question arises as to whether or not this is related to some kind of defense. Students are going to have different scores on this Machiavellian scale too, and I wonder how the scores are related to other student characteristics.

This seems to be an important consideration, I think, because one must realize that if high Mach scores are (like Cynicism) related to unresolved anxiety one has a different problem in medical education than if they are related to other qualities. Without measures of what is going on inside of the person from the personality standpoint, one would find it very difficult to know what kinds of therapeutic measures need to be taken by schools in handling student problems.

DR. READER: Although I think that Dr. Eron's observations are very interesting: that medical students have Anxiety and that they also have an increase in Cynicism, I don't think that the connection has necessarily been proven. Cynicism or Machiavellianism, or whatever we call these attitudes, are not necessarily defenses that mean the student is sick and needs treatment. They may be physiological responses and the anxiety may be created by something else occurring at the same time in the student's environment.

DR. FUNKENSTEIN: We are not saying that the student is sick. What I am trying to say is that trait relationships need to be studied. Dr. Eron found that the medical students who were high on Anxiety were the ones who were high on Cynicism; medical students with low Anxiety scores were not high on Cynicism. It doesn't mean that students are sick because they are anxious—we use all kinds of defenses; we may not be healthy, but we may not be sick.

When I used the word therapy, I was talking in the same terms as Dr. Richmond. Possibly the kind of teaching that goes on affects the student in some way. This then raises the question of whether or not changes might be effected in the teaching of medical students that would enable them to handle their anxieties and not develop these particular attitudes.

DR. SEVERINGHAUS: I would like to ask Dr. Christie or Dr. Merton if one or the other would comment on the Purdue studies of teenage opinion, of which I have only read the summaries. One would gather from them that in the years just ahead of us not only the medical students but all students will score high on the Machiavellian scale.

DR. MERTON: I would prefer not to comment on the Purdue studies in particular. For the most part, these are polls reporting marginals; that is, they report the percentages of replies to questions. These absolute percentages cannot be taken at face value, as laymen sometimes do. As is well known, the distribution of replies will change greatly as you change the wording of the "same" question. That is why the social scientist does not attach much significance to the absolute percentages of various replies. Instead, he *compares* the responses of different kinds of people to the same question, thus keeping the question constant. He deals with relative or comparative percentages, not with absolute percentages.

Apart from that, the Purdue materials lend themselves to further analysis. It would be possible to find out how widespread is the sense of disillusionment and distrust, the feeling that you can't count on the other fellow. This would bear on the query made by Dr. Richmond (in the preceding section): To what extent are certain values held throughout the society, and to what extent are they typical only of certain regions, social strata, age groups, and so on? Only then can we see the medical student or the engineering student or others in context. This is simply to say that when we focus on one group, such as the medical student, we cannot assume that the findings are distinctive of that group. This can only be answered by comparative study, as we tried to indicate in our paper.

CHAPTER 8

Development of Professional Attitudes and Capacities

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THE PRECEDING chapters in Part III have focused attention on the methods that Dr. Robert K. Merton and his colleagues have used in obtaining information about medical students and the forces that impinge upon them. The purpose of this chapter is to present some findings that shed particular light on the development of professional attitudes and capacities. This summary is based on the ongoing research of the Bureau of Applied Social Research, the Special Student Questionnaire that was administered as part of the pre-Institute research, and the Institute round tables.

FINDINGS FROM *THE STUDENT-PHYSICIAN*[1]

Investigating the forces that act upon medical students, as Dr. Merton and Dr. Richard Christie indicated in Chapter 6, requires complex methods of research and much careful and thoughtful analysis. It was because a good deal of labor of this sort had already gone into the preliminary findings reported in *The Student-Physician* that I commended the book to the attention of the participants in preparation for this Institute. The results presented in that volume are tentative but suggestive impressions based on information collected in only three medical schools, but I think they may be relied upon, at least until more complete information supports or refutes them. A brief overview of some of these results is presented by way of introduction to this chapter.

Career decisions

First, in regard to the decision to study medicine, it was found that many medical students became interested in medicine at an early age, although others said that the idea did not occur to them until quite late. The more contact with physicians in the family, the earlier was interest aroused, and the final career decision was reached most often during the early college years. A comparative study of the decisions made by law and medical students reveals that, typically, medical students decide on their chosen career considerably earlier than do law students.

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[1] Merton, Robert K., Reader, George G., and Kendall, Patricia L. *The Student-Physician* (Cambridge: Harvard University Press, 1957).

Another paper on career decisions considers tendencies toward specialization. In this study, confined to Cornell Medical College, it was found that, as they proceeded through medical school, students were increasingly likely to express an interest in specialized training. Several possible explanations were offered. First-year students may express an interest in general practice partly in order to avoid a premature commitment to a specialized area. At that early stage in their training, they know little about the different specialties or about their own abilities. They therefore prefer to postpone making a definite decision. As they advance through medical school and come to appreciate the complexities of modern medicine, many students develop awareness of the virtual impossibility of achieving equal competence in all fields and may therefore feel compelled to select one branch of medicine in which to concentrate. Furthermore, the faculty may encourage students, especially the abler ones, to enter specialty practice.

Attitudes

From different sorts of career decisions the papers in *The Student-Physician* turn to processes of attitude learning. The first of these considers developing self-images, a topic mentioned by Dr. Christie and Dr. Merton in illustration of the so-called panel method. As students move through medical school, they of course tend to develop an image of themselves as doctors rather than merely as students; this is especially the case in their clinical years, when they have substantial contact with patients. Even so, it was found that a sizeable number of medical students at Western Reserve considered themselves doctors as early as the end of the first year. Efforts to account for this led to a number of interesting, though tentative, conclusions. In accord with the hypothesis that individuals tend to develop a self-image that reflects the image others hold of them, it was found that students with patients who assigned them the role of physician were more likely than other students to begin to think of themselves as doctors. It was found, further, that the requirements of the patient also affected the development of a professional self-image by the student: the opportunity to act in the role of a physician facilitated a sense of growing doctorhood. Specifically, students assigned to families with medical problems were more likely to think of themselves primarily as doctors, not students, than were those assigned to families that presented no medical problems. Furthermore, when first-year students at Western Reserve felt they handled the problems of their patients without much difficulty, they exhibited a tendency to develop this professional self-image, even as early as the end of their first year.

A second paper in this same section of *The Student-Physician* deals with students' preferences for different types of patients and the effects these may have on the ability of fourth-year students to deal effectively with patients. This analysis started with the assumption that students will be under less strain in providing uniformly good care for all patients if they feel equally willing to work with all. It was found that neutrality toward patients is fostered by the students' confidence in their ability to perform many of the duties of a physician. And contributing further to this attitude of impartiality is the ability of students to remain detached even when patients behave in ways that are defined as uncooperative.

The Student-Physician contains additional papers on other topics that will interest medical educators, but the final paper from the book that we shall review here considers some of the experiences in medical school that contribute to the student's growing awareness of and ability to cope with the uncertainties that he inevitably faces. Based on qualitative material, this analysis covers a wide spectrum of situations that cannot be easily summarized here. The substance of the analysis, however, is that many experiences in medical school, explicitly intended for other purposes, appear implicitly to enhance the students' abilities to deal with the uncertainties a physician faces in his work.

FINDINGS FROM THE SPECIAL STUDENT QUESTIONNAIRE ANALYSIS

In an appendix to *The Student-Physician* is a copy of the final form of the questionnaire used in the panel studies referred to by Dr. Merton. This has been refined in many trials. The reader will note if he looks it over that it encompasses a much larger number of hypotheses than have been reported thus far. As is outlined in another appendix to the book, further analysis of other topics is now under way—but even when these studies are completed, the data will not have been entirely exhausted. Also, only three medical schools have been studied in detail so far: Cornell, Pennsylvania, and Western Reserve. A wider sample will be needed in order to generalize any conclusions to American medical education at large.

It was for this reason that we seized with such delight upon the happy opportunity provided by this Institute to administer some of the questions to the total student bodies of 15 schools. The sample of schools was designed as follows: four from each of four geographical regions in the United States, two tax-supported schools and two private; it was further planned that each tax-supported and each privately supported pair would represent one school with average Medical College Admission Test (MCAT) scores higher than the national average and one with average MCAT scores lower than national average. There is no high-MCAT, tax-supported school in one region; hence there are 15 schools instead of 16 in the total sample of special schools.

Before presenting some of the preliminary findings from the Special Questionnaire administered in the pre-Institute survey, a word of warning is in order.[2] The over-all total figures, although often highly suggestive, may not be generalizable to the total medical student population. This is so because the 1,322 students who comprise this sample may not be perfectly representative.[3] Thus we cannot attach particular importance to the fact that 61 per cent of the total said medicine was "the only career that could really satisfy" them, 35 per cent considered it "one of several careers" they would find equally satisfying, and a final 4 per

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[2] The following findings, most of which are taken from the *Questionnaire Analyses* compiled by Dr. Helen Hofer Gee and her associates, have been analyzed by Dr. Patricia L. Kendall of the Bureau of Applied Social Research, Columbia University. Dr. Kendall also aided materially in writing this report, and her invaluable help is gratefully acknowledged. We must emphasize that these findings are almost random in nature. The pressure of time made it impossible to carry out a systematic analysis.

[3] The 1,322 students from the 15 schools comprise a 50 per cent random sample drawn from the 90 per cent questionnaire returns. Representativeness tests have not been performed.

TABLE 8.1

STUDENT REPORTS OF LEVEL OF COMPETITIVENESS ACCORDING TO SIZE OF SCHOOL

(Special student group)

Level of competitiveness*	% of students in 3 types of school citing competitiveness*		
	Small schools	Medium schools	Large schools
A great deal	18	30	36
A fair amount	50	45	45
Only a little	28	24	18
None	4	1	1
Total N	(138)	(604)	(557)

* Here and in Table 8.11 there are 3 schools in the small group, 8 medium, and 4 large.

cent viewed it as "not the most satisfying career" they could think of, everything considered (Table 2.1 on page 43). Instead, we use these figures as the raw material for making comparisons—between schools, between classes, and between groups of students characterized in various respects. It is to some of these comparisons that we now turn.

Level of competitiveness

Numerous studies in industrial sociology have documented the proposition, obvious on a common-sense level, that production is highly affected by conditions of work. Similarly, as was emphasized throughout this Institute, the ease with which medical students acquire the technical information they are expected to learn and the speed with which they develop professionally appropriate attitudes are affected by the atmosphere in which they are studying. A significant feature of this atmosphere, we suspect, will be the prevailing degree of competitiveness. One item in the special questionnaire was therefore addressed to the students' perceptions of competitiveness among their classmates: they were asked if they believed there was a great deal, a fair amount, only a little, or no competitiveness among their fellow students. Their responses show considerable variation from one school to the next: in one medical college 15 per cent of the students reported a great deal of competition; in another school 47 per cent perceived a comparably high level of competitiveness (Table 8.2).

One source of this variation, it turns out, is class size. To determine this, the 15 special schools were divided into three groups. In the first group are schools with average classes of less than 70 students; these schools, of which there were 3 in the sample, were labeled "small schools." In the second, the intermediate group, are the 8 schools whose classes average between 70 and 90 students. We consider as "large schools" any institutions whose average class size is more than 90; in the present sample there were 4 such schools. The degree of competitiveness thought to exist was then examined in each of the size groups. As Table 8.1 shows, with increasing size there is an increasingly high level of competition. Less than 1 in 5 of the students in small schools felt there was a great deal of competitiveness among their classmates. In the medium-size schools, 30 per cent of the students report a great deal of competition; and in the large schools 36 per cent of the students make this report. One possible explanation of this relationship is as follows: where there are more students the probability of achieving

TABLE 8.2

COMPARISON OF STUDENT AND FACULTY JUDGMENTS REGARDING LEVEL OF COMPETITIVENESS AMONG STUDENTS IN 15 MEDICAL SCHOOLS

(Special student and faculty groups)

	Students		Clinical faculty	
Medical school	% saying a great deal of competition	N	% saying a great deal of competition	N
I	23	(52)	8	(91)
II	24	(75)	9	(54)
III	34	(79)	14	(117)
IV	34	(73)	15	(119)
V	38	(80)	4	(80)
VI	16	(78)	5	(134)
VII	28	(173)	13	(102)
VIII	27	(99)	10	(87)
IX	45	(96)	13	(68)
X	44	(190)	11	(124)
XI	17	(59)	2	(65)
XII	21	(72)	3	(74)
XIII	15	(48)	3	(58)
XIV	47	(76)	16	(71)
XV	29	(72)	11	(18)

unique distinction such as being top man in the class, winning a sought-after prize, being elected to an honor society, and the like is lower for any one student than is the case in smaller classes. Achieving these distinctions therefore involves greater competition. It may also be, of course, that the admissions policies of large and small schools differ, with the former recruiting students who are more likely to be competitively oriented. Whatever the source of the difference, these data indicate that, in this one respect at least, the atmosphere in which the medical student undergoes his training is qualitatively different in large and small schools.

It should not be assumed, of course, that this relationship between school size and level of competition is obvious or self-evident. The opposite result is also possible. It is conceivable that the higher levels of competition would be found in smaller schools, for in schools with small classes the students are likely to know each other better, to have assessed each other's capacities better, and not to have the freedom that the anonymity of large numbers provides.

Still on the same subject, it is interesting to note that clinical professors in these same 15 schools are consistently less likely than the students they teach to report a high level of competitiveness (Table 8.2). In one school, for example, 38 per cent of the student body, but only 4 per cent of its clinical faculty, said that there is a great deal of competition among students. Even though there are these discrepancies between the student and faculty assessments of the absolute level of competition in the 15 schools, there is close correspondence in their perceptions of the relative amount of competitiveness. To see this, we first rank the schools from 1 to 15 according to faculty opinions regarding the prevailing level of competitiveness. We then repeat the ranking procedure for the student assessments. Examination of the two sets of rankings shows them to be in close correspondence; in fact, the coefficient of rank-order correlation is .77, a respectably high figure indeed. (If there were perfect correspondence, the coefficient would be 1.00.) What this means is that the judgments of both students and faculty are based on reality, and are not wild guesses or random responses.

TABLE 8.3

STUDENT VIEW OF VALUE OF PATIENT CONTACTS ACCORDING TO CLASS IN MEDICAL SCHOOL

(Special student group)

View of patient contacts	% of students in each class citing view			
	First year	Second year	Third year	Fourth year
Primarily as an opportunity to learn medicine	29	48	43	28
Primarily as an opportunity to help patients	1	*	1	*
As presenting equal opportunities to learn medicine and help patients	66	51	56	72
No response	4	*	*	*
Total N	(349)	(332)	(321)	(320

* Less than .5 per cent.

Attitudes toward patients

We turn next to the students' attitudes toward and relationships with patients. It is our assumption, which will have to be checked by further investigation, that the student carries with him into his later stages of training, and eventually into practice, many of the attitudes and modes of relationship that he develops while still in medical school. It is therefore important to find out just what these developments are.

A first question concerns the views that medical students have regarding the main value of their contacts with patients. Do they look upon these contacts primarily as occasions for them to learn medicine, or primarily as occasions to help patients, or as presenting them with opportunities both to learn and to be of service? As Table 8.3 indicates, only a negligible number of students in this special sample regard their contacts with patients primarily as occasions to provide help to the patient; the great majority look upon their contacts as serving the dual function of helping patients and offering opportunities for learning.

Of greater significance is the fact that these attitudes show a definite pattern of development, a pattern it might be added that has previously been traced in the studies carried out at Cornell, Pennsylvania, and Western Reserve.[4] First-year students are not especially inclined to view their contacts with patients primarily as occasions for learning medicine—only 29 per cent gave this response to the question. We might add parenthetically that, had these students been queried before coming to medical school, we should expect to find (as the Bureau of Applied Social Research studies have found) an even smaller proportion of students holding this position. But, by the end of their sophomore year, fully half of the students have developed this orientation: 48 per cent of second-year students look upon their meetings with patients primarily, perhaps even exclusively, as occasions for their own learning. This proportion declines somewhat in the third year—to 43 per cent. It is not until the end of the fourth year, when only 28 per cent give the learning-focused response, that the same level of patient-orientation found among first-year students is regained. This pattern, which seems to us well established by now, merits further consideration and discussion.

[4] See Merton, Robert K., Bloom, Samuel, and Rogoff, Natalie, "Studies in the Sociology of Medical Education," J. Med. Educ. 31, 1956, p. 556.

TABLE 8.4

TYPE OF PATIENTS STUDENTS CONSIDER MOST VALUABLE

(Special student group)

Prefer to see:	% of students
"Hand-picked" patients	40
A representative sample of patients	58
No response	2
Total N	(1322)

Closely related to the question of what values derive from student-patient contacts is the question of what kinds of patients are considered most valuable to medical students at different stages of their training. In this connection, the special student questionnaire asked: "Do you think students in your year of medical school should see 'hand-picked' patients or a representative sample of patients?" Table 8.4 reveals that 2 in every 5 students think they should see hand-picked patients, while the remainder believe a representative sample more appropriate. Once again, however, these over-all figures becloud a very marked pattern of response. As Table 8.5 shows, in the preclinical years there is a pronounced tendency to prefer hand-picked patients—59 per cent of the first-year students and 57 per cent of those in their second year indicated this when answering the question. Apparently these students, who are usually just beginning their studies of disease processes, believe they can learn most from "classical" examples of pathologic entities they are studying; they therefore want these classical cases hand picked for them. In the clinical years, however, this is no longer the case. By that time medical students have gained some measure of confidence in their ability to deal with whatever problems a patient may present. Possibly also they are looking toward the approaching day when they will start to practice medicine and cannot prescribe the kind of patient who will come to them. In any event, the great majority of clinical students—72 per cent in the third year and 86 per cent in the fourth year—prefer to have experience with a representative sample of patients.

Some further indication that a preference for representative as opposed to hand-picked patients is related to the student's self-confidence can be seen in Table 8.6. In this case third- and fourth-year students have been separated according to their self-images so that clinical students who in their recent contacts with patients have tended to feel like doctors have been distinguished from those

TABLE 8.5

TYPE OF PATIENTS STUDENTS CONSIDER MOST VALUABLE ACCORDING TO CLASS IN MEDICAL SCHOOL

(Special student group)

Prefer to see:	% of students in each class citing preference			
	First year	Second year	Third year	Fourth year
"Hand-picked" patients	59	57	27	13
A representative sample of patients	35	42	72	86
No response	6	1	1	1
Total N	(349)	(332)	(321)	(320)

TABLE 8.6

TYPE OF PATIENTS STUDENTS CONSIDER MOST VALUABLE ACCORDING TO SELF-IMAGE

(Special student group)

Prefer to see:	% of students with each kind of self-image citing preference*	
	Feel like a doctor	Feel like a student
"Hand-picked" patients	17	25
A representative sample of patients	82	74
No response	1	1
Total N	(395)	(256)

* Third- and fourth-year students only.

who in comparable situations continue to feel like students. We know from our earlier investigations, mentioned in Chapter 6, that students who have adopted a professional self-image are more likely to be self-confident in other respects as well. The expressed patient preferences of the two groups were examined. Although the differences are not large, they are in the expected direction: 82 per cent of the students who thought of themselves as doctors, as opposed to 74 per cent of those who thought of themselves as students, prefer to work with a representative sample of patients. This gives some further support to the proposition that, until they gain some confidence in their dealings with patients, medical students prefer to see hand-picked cases.

The Special Questionnaire included a number of other items concerning student preferences for dealing with particular kinds of patients (Table 8.7). In the analysis carried out so far, however, the results have been largely negative. In previous studies with students at Cornell, Pennsylvania, and Western Reserve, a definite trend has been found in response to questions on students' preference for a patient who wants to know them only on a doctor-patient basis or for one who also wants to know them on a friend-to-friend basis. The more advanced

TABLE 8.7

STUDENT REPORTS OF OTHER PREFERRED PATIENT CHARACTERISTICS

(Special student group)

Preferred types of patient	% of students
A new patient who presents a diagnostic challenge	58
An old patient where the problem for the physician gradually unfolds in the course of many contacts	5
It makes no difference	37
A patient who wants to know you only on a doctor-patient basis	29
A patient who wants to know you also on a friend-to-friend basis	39
It makes no difference	32
A patient whose illness is entirely physical	42
A patient whose illness is chiefly emotional in origin	3
It makes no difference	55
A male patient	8
A female patient	5
It makes no difference	87
A patient from the lower socioeconomic class	1
A patient from the middle socioeconomic class	29
It makes no difference	70
Total N	(1322)

TABLE 8.8

STUDENT PREFERENCE FOR EXCLUSIVELY PROFESSIONAL RELATIONSHIP WITH PATIENTS ACCORDING TO CLASS IN MEDICAL SCHOOL

(Special student group)

Preferred type of patient	% of students in each class citing preference*			
	First year	Second year	Third year	Fourth year
A patient who wants to know you only on a doctor-patient basis	42	43	38	51
A patient who wants to know you also on a friend-to-friend basis	58	57	62	49
Total N	(217)	(219)	(221)	(221)

* Students who answered the question by saying "It makes no difference" have been omitted.

these students, the more likely they were to prefer strictly professional relationships with their patients. We had interpreted this to mean that with growing awareness of the complexities of the doctor-patient relationship comes a growing belief that the introduction of extraprofessional elements will only complicate the relationship further.

For reasons that are not at all clear now, this pattern is not found in the data from the Special Questionnaire (Table 8.8), although it is true that these fourth-year students are also more likely than any of their junior colleagues to say they prefer to work with a patient who wants to know them only on a doctor-patient basis. Among those students who expressed a preference—that is, among those who did not say "it makes no difference"—51 per cent of the seniors as contrasted with 42 per cent of the first-year students, 43 per cent of the second-year students, but only 38 per cent of the third-year students considered a strictly professional relationship preferable. But the differences between the classes are not large, nor for that matter is the trend a consistent one.

Table 8.7, based on the Special Student survey, makes it apparent that a large proportion of medical students adopt a neutral position with regard to the kinds of patients about which they were asked. Thus, 55 per cent claim it makes no difference to them whether they see a patient whose illness is entirely physical or one whose illness is chiefly emotional; 70 per cent say it makes no difference to them whether they work with a patient from the lower socioeconomic level or one from the middle level; and fully 87 per cent report that it makes no difference to them whether they see a male or a female patient.

If we can trust student replies to a direct question, and there is no reason to believe that we cannot, a substantial majority of the medical students in the special sample look upon patients as "individual persons" rather than as "disease entities" (Table 8.9). What is more important, there is very little variation in this view of patients. Advanced students are not significantly more likely than beginning students to view patients as individual persons; those receiving their education in private medical colleges are no more likely to hold this view than are those in publicly supported institutions; and students in small schools are no more likely than those in large ones to think of patients in these individual terms. In other words, when the students' own perceptions are under review, there is a uniform tendency for them to think about patients as individual persons.

This is far from the case when students are asked to reflect upon faculty performance, as witness their response to the question: "When patients have been

TABLE 8.9

STUDENT REPORTS OF FACULTY PRESENTATION OF PATIENTS FOR DISCUSSION COMPARED WITH THE WAY STUDENTS THINK ABOUT PATIENTS

(Special student group)

Patients	% of students citing	
	Faculty presentation	Personal reaction
As individual persons	32	70
As disease entities	64	26
No response	4	4
Total N	(1322)	(1322)

TABLE 8.10

SCHOOL DIFFERENCES IN STUDENT REPORTS OF FACULTY PRESENTATION OF PATIENTS FOR DISCUSSION

(Special student group)

Medical school	% of students citing presentation of patients			
	As individual persons	As disease entities	No response	N in each school
I	44	56	0	(52)
II	36	63	1	(76)
III	14	85	1	(79)
IV	42	56	1	(72)
V	26	71	3	(80)
VI	42	56	1	(78)
VII	29	62	9	(173)
VIII	37	61	2	(99)
IX	42	55	3	(96)
X	15	83	3	(190)
XI	36	47	17	(59)
XII	37	62	0	(72)
XIII	35	56	8	(48)
XIV	57	43	0	(76)
XV	15	76	8	(72)

discussed with you, how have they generally been presented—as individual persons or as disease entities?" Their answers, shown in Table 8.9, indicate clearly that these students consider the faculty less virtuous than they are themselves—if viewing patients as individual persons is a virtue. Although 70 per cent of the students said they personally thought of patients in individual terms, only a third reported that patients were presented in this way by the faculty. Unlike the students' perceptions of themselves in this regard, there is considerable variation from school to school when faculty behavior is reported. At one extreme is a school in which only 14 per cent of the students said patients were presented as individual persons by the faculty; at the other extreme is a school in which this report was made by 57 per cent of the students (Table 8.10).

Furthermore, it is possible to trace some of the sources of this variation. For example, students in privately supported medical colleges are more likely than students in public institutions—39 per cent as opposed to 26 per cent—to report that the faculty discusses patients as individual persons rather than as disease entities. And, as Table 8.11 shows, the differences are even more clear-cut when we consider, not the source of support for the school, but its size. In small medical schools with classes that average less than 70 students, 42 per cent cent of the students say that the faculty presents patients as individual persons; this

TABLE 8.11

STUDENT REPORTS OF FACULTY PRESENTATION OF PATIENTS FOR DISCUSSION ACCORDING TO SIZE OF SCHOOL

(Special student group)

Faculty presentation of patients	% of students in 3 types of school citing faculty presentation		
	Small schools	Medium schools	Large schools
As individual persons	42	34	29
As disease entities	58	66	71
Total N	(145)	(593)	(534)

proportion declines to 34 per cent in medium-size schools (those whose classes average 70 to 90 students), and to 29 per cent in the large schools with classes of more than 90 students.

It will require considerably more exploration to determine how this relationship between school size and perceived faculty performance develops. One plausible explanation is that in the larger schools classroom discussion is necessarily more formal than it is in smaller schools, and that the manner in which patients are presented by the faculty is endowed with some of this impersonal atmosphere. Again, however, whatever the explanations for the differences, they do exist and indicate another significant respect in which the learning environment of large and small schools differs.

Faculty influence

These opinions of faculty performance serve as a useful introduction to our next topic, namely the types of situations in which the faculty exercises a high degree of influence over medical students and other types of situations in which they do not. Focusing for the moment on the first type of situation, where the faculty plays an important role, we might suppose such occasions to be largely those on which the student is seeking measured advice on important decisions that he has to make, a model after whom to pattern his behavior, or some information about one or another aspect of the medical profession. There is some evidence from the Special Student Questionnaire analysis to support these expectations. One question asked: "When it comes to making decisions regarding your future career in medicine, how much value do you attach to the advice and opinions of the following people?" Following this was a list that included parents, wife (or husband), friends in medical school, the full-time faculty of the medical school, the part-time faculty, and other physicians who are friends or relatives.

Table 8.12 makes it apparent that the advice of full-time members of the faculty is highly valued. No other group received a higher average ranking, although the students attached equal or nearly equal value to the advice of their wives and of other physicians of their acquaintance. Asked whose advice they valued *most* highly, the students selected the full-time faculty more frequently than

TABLE 8.12

RELATIVE VALUE ASSIGNED BY STUDENTS TO DIFFERENT SOURCES OF ADVICE ON CAREER DECISIONS

(Special student group)

Source of advice on careers	Student opinion of each source		% of 1322 students citing source as most important
	Value rating*	N answering	
Full-time medical faculty	2.0	(1308)	33
Wife (or husband)	2.0	(969)	17
Other physicians who are friends or relatives	2.1	(1264)	29
Part-time medical faculty	2.3	(1236)	9
Parent	2.5	(1308)	10
Friends in medical school	2.7	(1308)	3

* Figure reported is the mean of ratings assigned by students: 1 = a great deal of value; 4 = no value at all.

TABLE 8.13

GROUPS STUDENTS COMPARE THEMSELVES WITH IN ASSESSING THEIR SKILLS

(Special student group)

Standard of comparison for professional proficiency	% of students citing comparison standard for each area				
	Physical diagnosis	Handling personal problems of patients	Medical knowledge	Carrying out clinical tests	Standards of medical care
Classmates	53	39	68	59	32
Full-time faculty	11	13	9	9	25
Part-time faculty	3	3	1	1	4
Other practicing physicians	3	14	2	3	13
Interns and residents	19	17	9	15	14
No response	11	14	11	13	12
Total N	(1322)	(1322)	(1322)	(1322)	(1322)

they selected any other group; it appears that when the chips are down, and students have to designate a single set of advisers, wives no longer fare so well. On the basis of responses to this question, we can say that in situations where the students can benefit most from the help and advice of respected seniors they are likely to turn to the full-time faculty. This is consistent with some of the suggestions made by Dr. Dana L. Farnsworth in Chapter 5, Section A.

On the other hand there are some situations in which it is not so clear what role the faculty will play. For example, on occasions when the student is evaluating himself and is looking around him for groups that can serve as standards of comparison, what does he do? Does he look to the faculty, or to more nearly contemporary groups? The questionnaire contains an item that bears directly on this issue; students were asked to indicate with which groups they compared themselves when arriving at self-evaluations in the following areas: physical diagnosis, handling the personal problems of patients, medical knowledge, ability to carry out clinical tests, and standards of medical care. Mentioned in the question as possible standards of comparison are classmates, the full-time faculty, the part-time faculty, other practicing physicians, and interns and residents.

The replies to this rather complicated question are found in Table 8.13. It will be noted that without exception these medical students are most likely to compare themselves with their classmates when arriving at self-evaluations of their various proficiencies: 68 per cent do so when judging the adequacy of their medical knowledge; 59 per cent do so when measuring their ability to carry out clinical tests; 53 per cent do so when judging their skill in physical diagnosis; 39 per cent do so when evaluating themselves with regard to their skill in handling the personal problems of patients; and 32 per cent do so when judging their standards of medical care. It is doubly significant that it is only in connection with this final assessment, which unlike the other instances is an assessment of standards rather than of skills, that more than a negligible fraction of the students look to the full-time faculty for comparison; even then, only 25 per cent of the total do so.

Thus it can be said that the influence of the faculty is not all-pervasive. In many ways this is a reassuring finding. If medical students looked to the faculty for yardsticks against which to measure their own skills, as well as for advice and information, their psychological well-being might well be disturbed, for the gaps that separate the student and the full-time teacher are undoubtedly great.

Medical students may be wise, therefore, to measure themselves against their peers. At the same time, however, these results may cause disappointment among some medical faculty members by indicating a relatively low level of aspiration. Few of these students seem to have the drive or the pioneering spirit that would encourage them to set their sights high.

One other result in connection with these self-evaluations merits attention. Again we divide students according to their self-images into those who have felt like doctors in their most recent patient contacts and those who have continued to feel like students. If we then examine with whom the students in each of these groups compare themselves when arriving at evaluations of their skills, we find that students who have adopted a professional self-image are more likely to compare themselves with interns and residents, and that those who have retained an image of themselves as students are more likely to compare themselves with their classmates. The relevant figures for third- and fourth-year students are reported in Table 8.14. The differences are never large, but they are always consistent. Thus, to take only one example, 30 per cent of those with a professional self-image, as opposed to 18 per cent of those still thinking of themselves as students, elect to compare themselves with interns and residents when assessing their ability to carry out clinical tests. Conversely, 56 per cent of those with a professional self-image, as contrasted with 68 per cent of those who still feel like students, compare themselves with their classmates when making this assessment. In other words, students who anticipate their future status by feeling like doctors before they actually have become doctors are more likely to compare themselves with the group that is one step more advanced than they are in the sequence of medical training.

TABLE 8.14

GROUPS STUDENTS COMPARE THEMSELVES WITH IN ASSESSING THEIR SKILLS ACCORDING TO SELF-IMAGE

(Special student group)

Standard of comparison for professional proficiency	For each area: % of students with each kind of self-image citing comparison standard*									
	Physical diagnosis		Handling personal problems of patients		Medical knowledge		Carrying out clinical tests		Standards of medical care	
	Feel like doctor	Feel like student	Feel like doctor	Feel like student	Feel like doctor	Feel like student	Feel like doctor	Feel like student	Feel like doctor	Feel like student
Classmates	43	54	28	45	66	74	56	68	25	36
Full-time faculty	12	12	15	14	10	8	6	7	29	30
Part-time faculty	2	1	5	5	1	0	0	2	6	3
Other practicing physicians	3	3	20	8	3	2	5	2	13	9
Interns and residents	39	28	31	26	19	14	30	18	26	19
No response	1	2	1	2	1	2	3	3	1	3
Total N	(393)	(237)	(393)	(237)	(393)	(237)	(393)	(237)	(393)	(237)

* Third- and fourth-year students only.

Mention of the future status of medical students leads quite naturally to consideration of their career plans. Slightly more than half of the total sample of students plan to engage in specialized practice, and somewhat more than a third plan to enter general practice (see Table 2.5 on page 51). However, the overall total obscures a pattern of change that takes place over the course of medical school training. At the end of the first and second years of medical school, nearly half of the students plan to become general practitioners, but this proportion de-

clines in the succeeding years of medical school—at the end of both the third and fourth years only a third of the students voice an interest in general practice. Conversely, expressed intentions to enter specialty practice increase over the course of medical school; about half of the first- and second-year students, but nearly two-thirds of third- and fourth-year students, say they plan to practice a specialty.

This pattern is exactly like that reported in the paper from *The Student-Physician* on tendencies toward specialization (summarized earlier in this chapter), and the explanations are probably very much the same. But even if these explanations are incomplete or inexact, they do not alter the fact that there is a marked trend toward specialization—and this is a pattern that deserves consideration by medical educators. We should give particular attention to the question of whether the later training of these students suits them for the specialized practices they hope to enter.

Ranking of specialties

A final set of results from the Special Student study concerns the relative rankings of 12 different specialty fields. The students were not asked how much prestige they personally attach to each of the fields; instead they were asked: "In your judgment, what is the average prestige that members of the medical profession at large assign to each of the following types of doctors?" The results are recorded in Table 8.15. We note that the highest ranking specialties are surgery, internal medicine, and neurology; the lowest ranking fields are dermatology and psychiatry. How exactly these figures record the judgments of the medical profession as a whole cannot be told, of course, but some intimation that they are an accurate reflection is found in the fact that the student rankings are in very close agreement with comparable rankings made by the faculty. In fact, the coefficient of rank-order correlation between these two sets of ratings is .96—a figure that is almost unbelievable in this kind of research.

TABLE 8.15

STUDENT AND FACULTY RATINGS OF PRESTIGE OF SPECIALTIES

(Special student and faculty groups)

Specialty field	Opinion of importance M.D.s attach to specialties	
	Ranking by students	Ranking by faculty*
Surgery	1	1
Internal medicine	2	2
Neurology	3	3
Pathology	4	5
Pediatrics	5	7
Obstetrics	6	4
Radiology	7	7
Ophthalmology	8	7
General practice	9	10
Otolaryngology	10	9
Psychiatry	11	11
Dermatology	12	12

* Fields were assigned the same rank when they were tied.

A final word on the Questionnaire

The Special Student Questionnaire results provide data that permit us to make comparisons between medical schools especially selected to represent different types of institutions, between students at different stages of their training, and between students who have different characteristics or orientations. Some of these comparisons point up patterns of development that take place in medical students during the course of their training; others indicate significant variations in the learning environments provided by different kinds of medical schools; still others call attention to the varying modes of relationship between medical students and other persons in their environment.

All of these comparisons, even at this preliminary stage of analysis, provide considerable food for thought, and it is hoped this brief survey of the highlights will continue to provoke discussion among those who are concerned with the development of professional attitudes and capacities in the student physician. Some of the discussion provoked at the Institute itself is summarized below.

ROUND-TABLE DISCUSSIONS

Active participation, sometimes in the form of heated argument, ensued in the Institute's small-group discussions following the paper on sociological techniques used in studying medical students (Chapter 6) and the presentation of findings from the pre-Institute research on the development of professional attitudes and capacities in medical students outlined above. As with other round-table groups at the Institute, the discussants for Topic IV were not always concerned solely with the specific subject matter of the Topic that was supposed to be in force at the moment; inevitably there was a considerable cross-current of ideas from one part of the Institute to another. Furthermore, each small group reacted to the reports of the behavioral scientists by emphasizing different problems, asking different questions, and expressing different opinions. The following brief overview of highlights from the round tables is not structured according to the "suggested questions for discussion," but rather according to the actual subject matter that was covered. As will be seen, there was less attempt to discuss the approaches of the behavioral scientists than the content of their preliminary findings.

1. Dilemmas in medical teaching

Disease vs. patient orientation

Discussants observed that the disease-oriented versus the comprehensive approach to patients is a dilemma produced in part by the vast amount of technical information now required to practice medicine. Awareness of the latter plus the pressure of time may lead the student to focus primarily on disease and to adopt an impersonal attitude toward patients as a protective device.

There was thought by some to be grounds for arguing that comprehensive care may be impractical, and that the medical schools are setting an impossible ex-

ample when they attempt to teach it to students. Increasing patient volume and low fees seem to demand from the practitioner a speed-up in technique and adoption of short-cuts, although experience with some group care programs would suggest that this conclusion may be premature. In any case, a continually higher level of service is required for most physicians.

Many practicing physicians manage to achieve comprehensive care through intimate knowledge of their communities and extended contacts with their patients spread over time. This may be difficult for students, however, who see a much more restricted and episodic practice in most outpatient services and may conclude that they can only reconcile the discrepancy between formal precept and observed practice by learning a bedside manner.

Vocational training vs. university education

This issue, discussed in the round tables of several other Topics, received its share of attention in relation to the development of professional attitudes and capacities. Here it emerged that some think vocational training and university education are irreconcilable alternatives facing medical education; some, that training for medical practice is inevitably vocational and that only preclinical education can be truly considered a part of university education. Most agree that there is a problem in keeping medical teaching within a university framework and still providing enough practical technical skill to equip students to practice successfully.

A number of resolutions were proposed by the discussants:

1. The Ostrich: There is no solution and perhaps no problem. Students will take what they need from the medical school in the way of practical knowledge, and the faculty need only concern itself with an academic point of view in their teaching. Or some would insist that a false dichotomy is set up by those who say vocational training differs greatly in degree from university education.

2. Tail Looking for a Dog (in which the tail is vocational training): The solution lies in bringing practice closer to the medical school through medical care programs, geographic full-time teachers, and preceptors who are practitioners. At Kansas this has involved the selection as preceptors of model practicing physicians who have had a lasting influence on many students. The preceptors in turn have been affected by this process, and many have returned to school to avail themselves of some kind of postgraduate educational experience.

3. Dog Looking for a Tail (in which the dog is university education): Here the solution suggested is to modify hospital techniques of providing medical care by developing ancillary health workers who can help alleviate pressure on the physician. By utilizing hospital and visiting nurses, home care, office clerks, and technicians, many of the existing functions of the practitioner may be eliminated. This is being done in many university hospitals already. In fact most medical schools provide a group practice experience, but may nevertheless leave the students with the values of the self-reliant individual entrepreneur.

4. The Compleat Medical School: The medical school is both a university and a trade school; both dog and tail. As a university it must continually probe for and formulate standards by which to achieve maximal adequacy of medical care. As a trade school it must offer the most effective educational experiences it can devise in order to train students to meet these standards.

In a changing society standards require continuing accessions of new information. Some of this information must be derived from research, conducted perhaps by people not associated with the medical enterprise, that will indicate objectively what the community needs are going to be in the future as well as what the community's present expectations of medical practice are. Such reports are needed in order to formulate more adequately the kind of educational experiences best suited to achieving the highest professional standards. If the medical school meets community needs, then its prestige remains high, good students are recruited, and high professional standards can be maintained. If medical education isolates itself, medical practice will eventually deteriorate.

Conflict of roles

The student must learn various facets of his professional attitude in terms of appropriateness to the situation, but discussants noted that there are many discordant elements in the development of appropriate attitudes which must be harmonized; although not always mutually contradictory, these are often incompatible.

For example, being sympathetic and compassionate in dealing with patients tends to conflict with the student's need to remain uninvolved. The development of detached concern is difficult in the face of the student's inability to appreciate fully the expectations of his patients, the expectations of the faculty, and the emergence of his own self-image as a physician. Moreover, it may be difficult for the student to avoid excessive cynicism while at the same time he develops the healthy scientific skepticism essential to a proper approach to modern science.

Other conflicts arise from the desire for omnipotence coming into contact with the realities of everyday life; students and physicians often feel guilty in the presence of problems presented by patients with incurable diseases. Also responsible for difficulties is awareness of the conflicting roles the physician must sometimes play in his relationships with patients as compared with society and the public in general. In final illustration, the student may face problems in coming to terms with the fact that some of his professors may have attitudes and values different from his conception of the ideal physician and yet still be worthy of his respect as teachers.

Attitudes and values vs. knowledge and technical skill

Discussants expressed considerable disbelief in the possibility of transmitting appropriate attitudes and values to students through the same deliberate and specific teaching methods used in transmitting medical knowledge and skill. Rather, students were thought to learn values and attitudes mainly from experience and observation of faculty members, as well as from general precept throughout their medical education. In particular, discussants believed that as-

signing responsibility for patients to students provides greater motivation for learning facts, and at the same time helps to form professional attitudes. This process takes time, however, and there was a definite impression that the earlier the student was permitted to assume responsibility for patient care, the more effectively did he learn how to function as a physician.

Serious questions concerning the possible inadvertent development of negative values were also raised: (1) a general disrespect for patients' time may develop as a result of the pressures of the usual outpatient department handling of patients; (2) the danger of abbreviated history-taking under pressure of a large case load may result in a callous approach to patients; (3) a lack of regard for intellectual pursuit may develop as a result of routine handling of large numbers of patients. It was suggested that the clerkship in the third year is a useful tool in preventing such development of negative values. An invitation to a professor's home for students at this stage (or possibly at any stage) of medical education may also be useful in promoting desirable values.

Some suggested that the implied shortcomings of current patterns of medical education (see Part IV) could not necessarily be met simply by curricular changes or additions, especially in the preclinical years, but were better attacked as objectives of the clinical departments through examples set by clinical instructors in the student-preceptor relationship. The relative disparity in the adequacy of teaching the facts of medicine in contrast to inculcation of principles of thorough study and understanding of the patient was suggested to be due to the degree to which factual medical knowledge is more easily communicated through the media of didactic instruction such as lectures and textbooks. By contrast, the technique of studying the disease-in-a-person and of evaluating the patient in such a way as to make optimal the diagnostic-treatment process is not easily reduced to a written outline or graphic presentation. Rather, it requires repeated exemplification by physicians who are sensitive to the psychosocial factors in illness and who deliberately communicate this sensitivity to the student physician.

A contrast was drawn between medicine and law in regard to the common use of case books in teaching the latter discipline. It was suggested that the development of clinical case books for medicine, somewhat comparable to the earliest texts in this field, might contribute effectively to the objective of broadening the perspective of the student without reducing his attention to the medical specifics of the patient. With regard to specificity, however, the point was made that the heavily loaded character of the modern medical curriculum is not so much a function of accretion of basic and new principles in the biological sciences but rather that, out of a multiplicity of motives, teachers are cramming in minutiae with more concern for thoroughness of coverage than appropriateness and practicality of content. A cautioning voice was raised to suggest that such thoroughness may nevertheless be essential to the education of the student as a thinker and potential scientific investigator.

The promise of vertical teaching as a solution to the above problems received consideration in the Institute round tables. Some participants were of the opinion that so-called vertical programs are more apparent than real, in that blocks of subject matter are still being taught as blocks although they are presented in shorter time periods.

Although noting that experience indicates students and faculty to be generally accepting if not enthusiastic about vertical programs, and that student attitudes appeared appropriately influenced, it was questioned whether the attitudes and values of the student are reliable indicators of a stable orientation that he will maintain in his practice. Some discussants expressed genuine skepticism as to the degree to which fundamental attitudes of students with regard to interpersonal relations could be significantly and stably altered by experiences coming as late in life as the years of medical school.

For those who believed that significant changes in student attitudes were possible, there remained the important problem of determining which attitudes should be fostered, as well as deciding who is best equipped to do this. In this regard, the differing outlooks of the academician and the practicing physician were discussed.

2. The place of social science in the medical curriculum

Several persons suggested that the behavioral sciences be taught to medical students through case discussions, since they are more acceptable to students in this way; third and fourth year medical students in particular are more receptive to this kind of teaching. Some disagreed with the idea that such teaching should be limited to the third and fourth years, because they consider the behavioral sciences to be sciences basic to the practice of medicine. A poll of the participants indicated that this had been acknowledged, in that such courses are common in most schools in the first year. These courses are usually given by departments of psychiatry and could possibly be improved by including sociologists and psychologists regularly in the corps of instructors.

Some of the behavioral scientists pointed out that many medical teachers and physicians have naive assumptions about the social sciences. It is important to understand the background and the principles of the social sciences if they are to be applied successfully to medical education. These disciplines should be formally recognized and not relegated to being taught casually in the corridors where incomplete and often biased or erroneous concepts may be presented. By ignoring them in the curriculum a lack of their importance in the doctor-patient relationship is implied.

The patient's cultural background often influences the actual management of the patient by the physician; furthermore, it is important for the physician to have knowledge of other cultures and social classes, and it was pointed out that physicians usually deal more easily with patients in their own social class. Perhaps one reason that physicians in private practice seem to develop a better relationship with their patients than do physicians in a teaching hospital is that in the latter case patients are largely drawn from a socioeconomic class quite different from that of the majority of the physicians and about which they know very little.

Although many of the participants stressed the importance of introducing the social sciences more effectively into medical education, some warned that we must be especially careful in the selection of the social scientists who are to per-

form this difficult task. In a young science such as sociology, it is particularly difficult to find well-trained people who are competent to deal effectively in a cooperative effort with members of an older profession. It was stressed further that the impetus for the introduction of the social sciences must come from the clinicians themselves, just as was the case with the introduction of biochemistry and pharmacology 50 years ago. The problem of the antisocial-science attitude of many medical educators—apparently arising largely from ignorance of the fact that the scientific method is used in the social sciences as well as in the physical or biological sciences—was considered. Many participants enthusiastically endorsed a future teaching institute of the AAMC on the general subject of introducing the social sciences into medical education.

3. Methods of research in medical education

There was general agreement that the first step for a medical school in conducting research in medical education is the development of well-defined objectives agreed to by the entire faculty. The objectives should be reduced to writing, otherwise there may not be real understanding of or agreement with them. Only if this is done can adequate criteria be developed by which eventually the educational program may be evaluated.

Some attention was paid to the use of psychometrics in the determination of student interest and motivation. The suggestion was made that no single instrument should ever be relied on but rather a variety of data from different sources should be utilized. One note of skepticism persisted when discussants suggested that any admissions committee would still tend to base action on the academic grades of the candidates.

Some discussion centered on how much information should be given to a medical faculty generally about student problems. One point of view was that all information should be made available. Another point of view was that some information might be misused. At this point, some mention was made of the reason for student failures: these usually result not from lack of intellect but from emotional causes. A question was raised concerning what we look for in the performance of medical students. One suggestion was that personality inventory data be used only at a day of reckoning, that is, such data would be used only in doubtful cases, some marginal cases, or in reporting to hospitals selected by students for internship.

The limitations and values of various research techniques in the behavioral sciences were discussed. It was pointed out that the results of a single technique dare not be taken at face value, although modern research methodology has developed internal checks on the validity of material. More extensive reliance may be placed upon data gathered by a variety of independent techniques. It was indicated that many of the specific questions in attitude questionnaires are based on such material as student diaries, observations of the medical school environment, problems raised by medical educators, and interviews with a variety of individuals. Interpretation of results must take into account both the deficiencies of specific methods and the composite picture, based on a variety of data.

4. Discontinuities in the learning process in medicine

Among those who discussed this problem—one more directly related to the content of Topic V covered in the following chapters—there was general agreement that major discontinuities in learning for the student are represented in the transition from college to medical school and, within the medical school, from preclinical to clinical courses.

Whether these discontinuities actually result in obstruction of the learning process is not known. Assuming they do, however, there arises the question of how the discontinuities might be minimized. Among the suggestions offered, it was noted that the transition to medical school is easier when the student has already learned in college to study for himself; therefore one mode of minimizing discontinuity might be for medical schools to insist that the student enter professional school with a background of education in liberal arts culminating in an opportunity to do individual work. Another suggestion might be to make the approach to teaching the same in all phases of university education, i.e., subject matter could be taught always as an academic discipline.

Still another approach considered by discussants was experimenting with interdigitation of the medical and liberal arts curricula. Discussants recognized, however, that there may be inherent difficulties in such a procedure. For example, students might emphasize medicine at the expense of liberal arts courses, and the atmosphere of the medical school as well as the example of the medical faculty might imply subordination of the importance of training in liberal arts. (Detailed descriptions of some experimental programs under way in various medical schools can be seen in the following chapter.)

SUMMARY AND CONCLUSION

Sociological research in medical education is contributing information that these in medical education may find useful in making decisions concerning the best ways to prepare medical students for their professional lives. Dr. Christie and Professor Merton have described the varied methods employed in such research in Chapter 6. The present chapter has reported findings from *The Student-Physician* and from the Special Student Questionnaire that was circulated to students of 15 representative medical schools in preparation for the 1957 Institute. These findings dealt with career decisions and attitudinal learning, as well as with the level of competitiveness found in different schools, students' attitudes toward patients, and the influence of the faculty.

Also reported in this chapter has been a summary of the round-table discussions that followed the presentation of sociological findings at the Institute. In general, participants used the specific findings as a point of departure for discussion of certain broad and related issues that are currently of interest to medical teachers. The discussants observed that there were a number of dilemmas in medical teaching, including the following: how a total-patient orientation that would realistically fit into the demands of practice could be taught, how the vocational training needs of students may be reconciled with a university type of education, how students can best learn to harmonize the sometimes conflicting attitudes appropriate for a physician, and whether students may most feasibly be taught neces-

sary professional attitudes and values in the same way they are taught factual knowledge and technical skill. In addition to analyzing these dilemmas, Institute participants considered certain other topics, namely, the place of social science in the medical curriculum, methods of research in medical education, and discontinuities in the learning process in medicine.

In conclusion, it would seem that even fragmented and preliminary sociological findings about medical students, such as those reported at this Institute, may serve to provoke thoughtful deliberation on significant issues in medical education. As more systematic and complete data become available, it may be anticipated that medical faculties will be able to make more rational decisions about curricular changes.

PART. IV

Educational Patterns in Medicine

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Introductory Note to Part IV

The 1957 Institute, second on the evaluation of the student, offered an opportunity for the participants to consider the medical educational program as a totality of forces and influences. This kind of view may be contrasted with the method of approach used at the first three Institutes (1953, 1954, and 1955), which dealt more specifically with the role of the preclinical sciences in medicine. At these earlier Institutes the curriculum was considered as the major communication medium between faculty and students. As can be seen in the preceding parts of this report, attention this year was focused on the curriculum as one important segment of the ecology of the student, one that has important effects on the development of the student's professional attitudes and values as well as scientific and technical skill.

The chapters in this final part are concerned with the design of the curriculum —Educational Patterns in Medicine. Chapter 9 is based on the Institute discussions and the pre-Institute survey of opinions on five more or less experimental areas of program planning that were considered to be of sufficient current importance and general interest to be used as a framework for the discussions:

A. Integration of premedical and medical education
B. Integration of the teaching of basic sciences
C. Teaching of basic sciences as isolated disciplines as contrasted to emphasis on the applications of their subject matter in clinical medicine
D. Introduction of formal courses in the humanities and social sciences into the medical curriculum
E. Family care programs and preceptorships

Preceding the Institute, expressions of attitudes toward these program possibilities were solicited from an arbitrarily selected group consisting largely of medical faculty and administration. Excerpts from their replies were furnished to the participants in advance of the Institute, and because they reflect a cross section of mature opinions from those concerned with medical education, the excerpts are included verbatim. These are followed at the end of Chapter 9 by descriptions of a few novel curricular programs prepared by representatives of the schools in which they have been established.

Chapter 10 puts the various educational philosophies that currently prevail in our medical schools into historical perspective by contrasting the traditional versus the novel approaches to medical education—with particular reference to factors involving students, faculty, and society at large.

The final chapter presents one of the high points of the Institute: a paper given by Dr. John R. Ellis, sub-dean of London Hospital Medical College, on the British pattern of medical education and its effect on the student physician. Frequently during the discussions at the 1957 Institute the participants found that consideration of the differences and similarities of medical education in the two countries brought local problems into sharper focus.

CHAPTER 9

New Directions in Programs of Medical Education

BY JOHN A. D. COOPER
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THE PURPOSE OF this chapter is to explore some of the educational patterns for medicine as they exist in American medical schools today, with emphasis on the novel curricular program. Many of these approaches are highly controversial, and no attempt is made here to resolve the pros and cons, for it was well recognized at the Institute that what is appropriate for one school will not "work" for another, even though the dilemmas are similar. Rather, the intent is to present the different points of view with a minimum of commentary.

The chapter is organized according to the five topics suggested for round-table discussion, and the material is presented in such a way that those in medical education (and some in premedical education and in hospitals) can speak for themselves. Excerpts from their letters, solicited prior to the Institute, are reprinted verbatim, and each section of letters is preceded by a brief introduction. The Institute discussion groups were characterized by a reiteration of these often conflicting opinions on the solution of dilemmas in medical education—no universal agreement was reached, nor could it be.

INTEGRATION OF PREMEDICAL AND MEDICAL EDUCATION

Education for medicine is a continuing process that begins long before the student matriculates in the medical school and is really never completed during his productive life as a physician. The first topic on the list concerns one current educational philosophy—that a continuous and coordinated formal program of medical education beginning with entrance to college and extending to the awarding of the M.D. degree presents many advantages over the present system of divided responsibilities between the college and medical school. The proponents (of which I am one) argue that a well-organized curriculum that presents the subject material in a logical sequence would make easier and more efficient both the presentation of basic concepts by the various departments and the acquisition of these concepts by the students. Furthermore, the elimination of excessive and uncoordinated repetition that does not present subject matter in a progressively more erudite way can bring about less student dissatisfaction and give them better basic grounding. Shortening of the total length of the program could be considered without necessity for sacrifice of essentials.

The barrier that seems to exist between premedical and medical education could be lowered under such an integrated program. For the student, it would

become easier for him to see that the basic courses scheduled early in his program were of fundamental importance in his over-all professional education and not mere hurdles to be cleared. The inclusion of course work in the arts and humanities would give substance to the often expressed interest in having the students acquire a broad general education. Through proper selection of the core of required subject matter, more elective time would actually be produced for the student than he now has after fulfilling the multiplicity of premedical requirements for application to most medical schools. He would not be influenced to select easy courses in order to achieve high grades for gaining admission to medical schools. There would be a decrease in the intense and destructive spirit of competition that pervades the traditional premedical programs.

Still another point in favor of the integrated program is that cooperation in its design and operation might promote new understandings between the college and medical school and help bring the latter back into the fold of the university. Frank and continuing discussions among the faculty members would go far toward removing misunderstandings engendered by ignorance of the others' problems and points of view. On the other hand, serious questions are raised on the functions of the college, as pointed out by Dr. Aura E. Severinghaus in the following section of letters.

The very advantages that an integrated program provides in establishing a more orderly and logical education for medicine is the basis for one of its most serious dangers—stereotyping. Many medical schools draw their student bodies widely from the nation's colleges. This diversity of origin lends strength to the student body. An educational program that combined the premedical and medical preparation at one university could provide diversity only by distributing the high schools from which the entering class was selected.

The successful integrated program must be carefully devised to permit students to elect alternate educational goals if they find insufficient interest and motivation for clinical medicine. One way to allow for this eventuality would be for schools planning an integrated program to admit a considerably larger class in the first year than it is anticipated will finish the course, thus allowing for changes in program. In addition, adequate provision must be made for admission of students to the program of study for medicine who do not make their career choices until after entrance to college. These students should not suffer a severe penalty of time lost. It has been pointed out that the possibility of earlier acceptance into professional education might attract some capable students who would otherwise reject medicine because of an exaggerated notion of the competition to be faced in gaining admission to a medical school.

The question of immaturity of the student is usually posed in any discussion of a program that would reduce the total time of education for medicine and very likely bring the student into contact with patients at an earlier age. Time is important in intellectual and emotional development and the program must not be so curtailed that it produces anxiety in unprepared participants. Suggestions have been made that the time for completion of such a course not be fixed, thus enabling each student to advance at his own speed.

Several letters from individuals who are well qualified to speak on the integration of premedical and medical education are reprinted immediately below.

It would seem that even the most enthusiastic supporters of integrated programs express a recognition of the dangers involved.

Excerpts from the letters on integration of premedical and medical education

The argument that the years spent preparing for a career as a physician are too many is one that cannot be ignored, but I wonder if it hasn't been overdone a little. Two changes that have occurred in our society somewhat diminish its force. The first of these is increased longevity; although increase in the period of training has delayed by a few years the average date of beginning full productivity, the expectancy of productive life has been increased much more than that. The second change is the toleration of society for the working wife; since it is now quite acceptable for a young man to be supported by his wife while he completes his training, it is no longer necessary for him to postpone marriage until he is ready to support her.

The argument that the years in medical school are so occupied with technical training that liberal aims and methods are largely lost sight of is not to be passed over lightly. Whether incorporating courses in the liberal arts in the medical curriculum would be effective is a question that cannot be answered with much confidence.

Medical students can take courses in the liberal arts college if the medical school is not too remote from the rest of the university. Otherwise, special liberal arts courses would have to be established at the medical school. Two obstacles would have to be surmounted here; the students might feel that the arts courses are less important than their medical courses, and the quality of faculty that could be attracted to teach liberal arts courses outside the usual liberal arts environment might not be of the best.

Selection of the best candidates to study medicine will remain one of the major problems of medical education. In an integrated program that granted medical school admission to students at age 18 or 19, (I recognize that some of the proposals avoid making such an early decision) there would be grave danger of failing to screen out many students who really do not wish to study medicine. It should not be too difficult to screen out the intellectually incompetent, but there are many able boys and girls, children of physicians being very numerous in this group, whose interest in medicine is no deeper than a desire to please their parents. By age 20 or 21, many of these gain enough maturity to recognize the weakness of their motivation and to insist on leading their own lives. If admission to medical school in an integrated program were granted earlier, many more of these young people—who may well be highly admirable—would get into medical training and either drop out with little to show for it or go on to careers for which they have little liking. It seems probable that any plan for medical training integrated with study of the liberal arts would have to anticipate substantial losses along the way.

WILLIAM E. CADBURY, JR.
Haverford College

The integration of liberal arts education with medical education into a single planned program is not new.

We should attempt first to reach agreement on the objectives of education and then consider how best to accomplish our purposes. There have been countless definitions of educational objectives, but none seem to me to be more meaningful than this: Education should introduce an individual to his inheritance, give him some sense of destiny in life, prepare him through soundly developed motivation and a proper sense of values to use his personally acquired skills in making his own contribution to that culture. This statement indicates that we must not only develop our skills, but give serious attention to the development of ourselves, so that we will apply our skills effectively. It means in other words that we become not only skilled but effective human beings, winning not only the acclaim but the respect and affection of our fellowmen.

The liberal arts college cannot be shouldered with the responsibility of teaching values and attitudes. "Virtue is not taught by prescription." If one succeeds in becoming a good brother or sister, a good husband or wife, a good father or mother, a good neighbor, a good friend, a good citizen, it is because he has worked at it from earliest childhood and continues to work at it all of his life. But men and women are in the liberal arts college during some of their most critical and impressionable years, and hence they present to the college a unique opportunity and a heavy responsibility to assist them in their search for values and a better understanding of themselves. Every academic discipline traditionally identified with the American college must, in its

own way, concern itself with the essential skills of an educated man, but it must do far more. It must widen understanding, broaden sympathies, increase social, political, and aesthetic insight. Those disciplines which make up the humanities and social sciences compel the student to relate himself to the subject matter and make him think of the relationship of the present to the past, the part to the whole, and himself to society and all human experience—it is these disciplines, I submit, which help a man to decide what he ought to do, that enable him through intellectual evaluation and decision to give sharpness and meaning to his future endeavors that might otherwise be enclouded by the fuzzy impressionism of the untrained mind.

It is clear, therefore, that this concept of liberal arts education rejects the idea that it is the chief concern of the college to prepare a student for medical school or any other next-designated program of study in our American system of education. It must provide the student with certain prerequisite factual knowledge, but it must deal with attitudes as well as disciplinary competence.

I am now prepared to state two firm convictions based upon a rather long and intimate study of the liberal arts college. First, I am convinced that any good college can do this total job better on its own than it can by being involved with a professional school in any joint program of education. This is especially true if the college course of study involves a culminating fourth year in which the student makes a personal contribution to scholarship. This experience involving independent thought is for many reasons invaluable. Secondly, I am convinced that although we may teach almost anyone the necessary factual knowledge and the special disciplinary skills in the profession of medicine, we must rely on our ability through selection to discover the students who have already demonstrated proper attitudes and desirable basic values through response to the stimulation of a college education. Difficult though it be, it is easier to select a good man than to teach a man to be good.

If these convictions are valid, then let us keep our hands off the liberal arts. Let us give the college teacher (our best source of information concerning the qualifications of the applicant to medical school) ample opportunity to know, assist, and evaluate those men and women whom we are to educate to be our future physicians.

AURA E. SEVERINGHAUS
Columbia University College of Physicians and Surgeons

Education is a continuous process. This idea is basic to the system of education through primary and secondary schools and through the college years. In the humanities, in the natural sciences, and in the social sciences we begin by providing basic tools which, once they have been mastered in some degree, allow the student to pursue an ever-expanding exploration and development of interests in these three areas.

In medical education we make some attempt at the recognition of this continuum by requiring certain prerequisites in the natural sciences for admission into medical school. Some schools also have prerequisites in the social sciences and in the humanities. Despite this it is generally the practice for medical curricula to take little, if any, note of what has gone before, and to treat the entering medical student as if he were starting afresh in an area where he had no previous experience. In effect a sharp division exists between the educational experience of a student before he enters medical school as opposed to that following his matriculation. Whatever start the student may have in a liberal education may then largely be wasted, for with very few exceptions he encounters among faculty members only a limited interest in nonmedical matters and almost never does he have opportunity or encouragement for the pursuit of interests outside his professional field. Even his preparation in the natural sciences is largely ignored. True, there may be a superficial lip service to the fundamentals of physical, chemical, or biological science, but the basic philosophies of these as they may be expressed in medical work are seldom granted more than cursory attention if they are accorded any recognition at all. Thus there is a drastic, probably harmful, and often painful interruption of the continuous development of the student's knowledge and intellectuality.

I have already spoken of the fact that the American educational system is geared to a level below that of the superior student. The enormous majority of medical students are drawn from this superior group, a group that has already been deprived of the opportunity to realize its full potential under the system. To some degree this is corrected during the college period, but the habits of education gained in primary and secondary schooling make it difficult and sometimes impossible for even the superior student to take full advantage of the opportunities offered by his college. Since these are the students with whom we deal, and since many of them are just beginning in their later years of college to take advantage of the lifting of restrictions primary and secondary school education has imposed upon them, it is even more important that no new

restrictions be set up during the medical school period. The break in continuity sets up such restrictions.

Were the colleges and medical schools to consider the whole stretch of education following graduation from secondary school as a continuum, these two harmful effects—the interruption of the student's learning process and the interruption of the development of his learning to think—could be eliminated. The University-level education should, indeed, be considered as the period in which the student finally achieves the position where the laborious preparation of primary and secondary school years can be put to profitable use. With planning, the use cannot only be profitable but also exciting—both for the student and the teacher. Only through integration of premedical and medical work can this be accomplished effectively and with meaning. The relationship of the social sciences and humanities to medicine will then become clear; the philosophical concepts that underlie the development of all science can be shown to operate equally in the medical sciences and in the rest of the natural sciences, especially as their parallel and interrelated developments are traced.

A danger that exists in such integration is the assumption that, since college and professional education are to be considered as one, the process can be conducted more efficiently and therefore some saving in time can easily be effected. Although it is possible that this may be done with careful planning, it must be recognized that time itself is a heavy contributor to the development of intellectual and emotional maturity of the individual. For this reason a compressed education, though more efficient in a pragmatic sense, may easily turn out to be productive of narrow individuals. Since in medicine especially this is one of the major criticisms leveled at practitioners, investigators, students, and teachers alike (probably with much justice), great care must be taken to insure that the objectives of the integrated premedical education are not made impossible for achievement through simple limitation of available time.

L. M. Stowe
Stanford University School of Medicine

It is fashionable to be concerned with the teaching process and no longer presume it enough that a distinguished group of research paper writers are in residence adjacent to lecture halls and laboratories. The integrated curriculum is founded upon the presumption that the student should be taught "facts" in an orderly process that will allow him to relate information from different disciplines easily. This would be very nice if these facts were incontrovertible truth and the status of the art static. While we are integrating facts we are fragmenting the student's exposure to the traditional disciplines. These have supplied the techniques, the logic, and the organization of knowledge that have been quite handy to physicians when "facts" have deserted them and they have had to rearrange their prejudices. Having reached the point where the educational process in the four undergraduate years is under searching review, are we ready to begin considering the education of the doctor as a whole? Is it time to seek ways in which the medical school can take responsibility for a larger segment of his preparation? Is there a place for Mr. Jefferson's concept that medicine should contribute to the cultural preparation of every educated man?

Murray C. Brown
National Institutes of Health

It is the writer's opinion (granted that most criticism is autobiographical in origin) that it should be possible to organize the medical curriculum so that, in the ten years following the candidate's admission to college, a physician both culturally educated and technically competent should result. In such a suggestion "culture" is not necessarily equated with nonscientific, nonbiological study, though it is the writer's belief that more rather than fewer nonscientific years of preparation for medicine are required. It must be conceded that scientific medical discoveries are likely to increase and the physician of the future to live in an increasingly scientific world; however, with a better educational background, his powers of discrimination and of selection of scientific truth from pseudoscientific trash would be enhanced, his worth as a citizen increased, and his "political" effectiveness and interest in the community enlarged.

Most candidates for medicine have formulated and expressed preference for a career in medicine by the second year in high school; high school teachers have noted that fewer of those having expressed an interest in a medical career change later to another line of endeavor than of those having expressed interest in other life possibilities. Although undoubtedly some candidates arrive at an interest in medicine at a later stage, they are the minority; hence earlier admission to courses in medical schools is possible and would be advantageous.

The present-day preprofessional course represents the only opportunity for the potential physician to acquire a cultural or a general education; the counsel given to him relative to selection of course topics is too heavily weighted to the "scientific" side, some of which he will repeat in medical school, and this programme lacks both breadth and depth. Too many candidates arrive at medical school with a smattering of knowledge acquired from the pursuit of many introductory courses, but with a scholar's knowledge of none. It matters little what discipline he may have followed in depth—whether English literature, history, Greek or Latin, mathematics, statistics, poetry, or physics—so long as he has delved beneath the surface of some one topic and acquired the status of an "advanced" student with a critical ability and the kind of knowledge which is not obviously power.

It should be possible for the candidate during his first year in college to demonstrate capacity in scientific disciplines (sufficient to satisfy the MCAT) and to undertake also some nonscientific studies. Thereafter, as a preparation for a lifetime in medicine, his effort until he becomes a clinical student should be about equally divided between the scientific field of learning and the nonscientific subjects of his choice. The present orientation of the preprofessional period is too frequently vocational rather than educational. Rigidity of course requirements is to be avoided insofar as our present prerequisites for entrance to medical school now or in the future may permit. Faculties must look at the whole period of ten years as a single continuous educational experience and so arrange curricula that more than a smattering of applied science, and an equally more thorough study of the humanities or social sciences are pursued.

R. R. Struthers
McGill University Faculty of Medicine

I . . . would fear the effect of vocational orientation on the liberal arts faculty and a totally integrated program. However, we must not consider orientation away from medicine absence of vocational orientation. Indeed, much of chemistry and physics is oriented toward industrial chemistry, dye chemistry, and engineering—just as many English teachers are trying to train English teachers in the freshman year of college.

Conversely one cannot deny that many aspects of medicine if properly taught are cultural in scope and direction.

Integration with the general university program would seem to be the most effective way of permitting maximum development of the medical student as his own interests are crystalized. No sharp cut from the university should occur. Freedom to select courses and to do independent work should benefit the medical student as it does other graduate students.

Licensing requirements need be no less strict. We must not assume that the private practice of medicine, however, is the only end of a medical education.

George A. Wolf, Jr.
The University of Vermont College of Medicine

A . . . serious deficiency relates to the sharp separation that has traditionally existed in American education between the liberal arts and medical science. The curriculum for medical students has always been virtually cut in two by an "iron curtain" that drops precipitously at the end of college. Once he enters medical school, the prospective physician is expected to leave behind his interests in the humanities and social sciences in order to devote himself exclusively to the study of medicine. Divorced so abruptly and so completely from the pursuit of a general education, he all too frequently loses interest in everything except the technical requirements of his chosen profession. With such a system in vogue, it is not surprising that many American physicians, though technically competent, appear deficient in their social, historical, and humanistic understanding, even in matters closely related to health.

W. Barry Wood, Jr.
Johns Hopkins Medical Institutions

With respect to the question having to do with premedical and medical education, I am strongly in favor of the Johns Hopkins experiment[1] which, to my knowledge, represents the

[1] Starting in the fall of 1939, this school will initiate a Revised Program of medical education but will also continue its regular program. Students in the Revised Program will be accepted after two years of college work for a five-year course in the School of Medicine. Continued work in the liberal arts will be given, along with specific courses in science directed toward medicine. A bachelor's degree will be given after two years.

most ambitious attempt to do something about this subject. It can be argued that the way to attack this would be by strengthening our undergraduate college and secondary school training, and that it is not the function of the medical college to attempt to participate so widely, or deeply, in such matters. Nevertheless, I have felt strongly for years that the physician is, in fact, "a social scientist" and that, as such, we should be sure he has obtained a properly broad background within which to apply his more technical activities. The arguments that such experiments would replace a liberal education with vocational training do not affect me too strongly, because I believe that at present this is just what we are doing. In short, with our preoccupation on premedical courses in the undergraduate college plus the conventional medical school approach, we are robbing the young men and women of liberal arts training only to make them little better than "mere experts." Moreover, with the small number of medical colleges and the very large number of undergraduate colleges, the caliber of the training received in the latter is widely disparate throughout the nation. If the medical colleges which are part of universities can do what they can in this situation, the way the Hopkins group are doing it, I believe a great deal will be accomplished. In short, if a young man leaves a poorer college in some part of the country at the end of his second year and enters into the Hopkins program, I am confident that on balance he will have received a far more liberal education than had he stayed where he was.

WALSH MCDERMOTT
Cornell University Medical College

The combined curriculum or integrated curriculum, as you wish, offers time for scientific preparation for clinical medicine that the present lockstep curriculum does not have. As a further benefit it permits those who have not committed themselves to clinical medicine the time to explore the basic sciences and decide upon their future. Entrance into the present curriculum represents an almost irrevocable decision on the part of a student. The correlated curriculum permits an early change in course for the student not selected for entrance into the medical school. Many times this can be advised at the end of the first year in college and a more definite answer is certain by the end of the second year. There is time for a change of interest before the commitment becomes too great. The medical educator cannot shrug off the responsibility for those not chosen. Their plight as human beings is frequently more serious than that of those who "make the grade." A properly organized integrated curriculum should not only accommodate those who are entering medicine early in their lives, but also those who make this important decision after they have graduated from the college or university.

GORDON H. SCOTT
Wayne State University College of Medicine

TEACHING BASIC SCIENCES

Two areas of discussion at the 1957 Teaching Institute dealt with the teaching of basic sciences—"Integration of the Teaching of Basic Sciences" and "Teaching Basic Sciences as Isolated Disciplines as Contrasted to Emphasis on the Application of Their Subject Matter in Clinical Medicine." These are interrelated and were considered together by many participants at the Institute. Both concern integration: one horizontal integration among the basic sciences, and the other forward vertical integration of the basic sciences toward clinical medicine.

The preclinical departments have long recognized their responsibility in following and applying the advances made in the natural and biological sciences in their fields of interest. In this way they continually revitalize their own disciplines upon which clinical medicine more immediately relates. The essentiality of this vertical integration backward by the preclinical sciences towards the basic disciplines of chemistry, physics, and general biology is not questioned. Without this bridge, research and practice of medicine would soon become sterile.

Forward correlation with clinical medicine is a more controversial subject. Most basic scientists see their role as providing the basic concepts and fundamental knowledge upon which the student may build his understanding of disease. Although there is agreement that suitable clinical examples are useful in heightening interest in all disciplines, extensive orientation toward immediate application is not considered desirable. It may be difficult for the student to appreciate the role basic sciences play in clinical medicine before he has some knowledge of the latter. It has been pointed out that the student must have the information on both areas in which correlation is desired, otherwise correlation occurs only in the mind of the instructor. Excessive concern by the preclinical departments in presenting immediate clinical applications has the danger of increasing vocationalism in medical education. The increasing competence of clinical faculties in the basic sciences makes the integration of basic sciences and medicine at the bedside an important part of the learning experience. Here the clinician and student can integrate the information together with the patient as the point of departure.

Horizontal integration among the basic sciences is not widely accepted by medical teachers. Its expressed goal is to organize our fund of knowledge in a manner that will permit the student to achieve understanding in a more logical and meaningful way; careful selection of the subject matter should eliminate undesirable overlap among courses. It seems clear, however, that horizontal integration must necessarily result in splintering in the presentation of the subject matter of a discipline and hence internal coherence within it is diminished. Thus the student may well find it difficult to gain a clear picture of the paths along which the individual basic sciences have achieved their present status and of their probable courses and promise for the future.

The discussions and interactions that occur among faculty members during the design and preparation of integrated courses may represent their greatest value. It is quite possible that equivalent time and energy expended in revision of courses in a traditional curriculum would achieve the same end. The necessity for defending course content before colleagues who have fresh viewpoints has obvious value in preventing sterile perpetuation of traditional presentations.

Integrated courses have the disadvantage of depending upon an administrative structure separate from the departmental organization. No one would argue that continual infusion of interest by a highly motivated and dynamic chairman is needed to maintain its operation at a high level.

The selections from letters dealing with the teaching of basic sciences are grouped according to: (1) horizontal integration and (2) vertical integration toward clinical medicine. Here, as in the discussion groups, it is evident that the two types of integration may well be coexistent.

Excerpts from the letters on horizontal integration in teaching basic sciences

If by an integrated program is meant a combination of anatomy, biochemistry, physiology, pharmacology, and bacteriology into one teaching unit to form a "medical science," I am strongly of the opinion that such integration is undesirable and for at least three reasons. These reasons are:

1. "Medical science" as a unit does not, in fact, exist. There has been no historical development of a unified medical science and any such artificial association will almost certainly require constant administrative policing to survive. I should think that in due time one of the departments would become dominant—which department would occupy this position would depend on the local factors not all of which are relevant to medical education.

2. It is difficult to demand a high order of performance of the medical students under an integrated program. Failing a medical student is a very unpleasant task and it is only by maintaining a sense of departmental responsibility that high scholastic standards can be set. An integrated program by its nature divides responsibility.

3. An integrated course in all the basic medical sciences would have a marked tendency to become another survey course with all breadth and little depth; in time, a development of this kind would force the clinical departments to teach the basic medical subjects.

HENRY B. BULL
The State University of Iowa College of Medicine

A medical school must do much more than train medical students. It must serve as a center of learning and research in the medical sciences. As such, the heads of its several departments must be so trained as to cover the whole broad field of the medical sciences; since the progress in medical science is based on progress in chemistry, physics, and biology, there must be some departments that maintain strong contacts with these fields. Every preclinical department in its teaching must correlate both forwards into the clinic and backwards into the basic sciences. Similarly the clinician must correlate his teaching backwards into the preclinical sciences and forwards into the life of the practitioner. Both the forward and the backward correlations are important, but of the two the backward correlation is ultimately most essential for the enduring vitality of the medical school. Without this the medical school is no longer part of the continuum which is science but becomes an isolated applied branch of science. Like the leaves of a tree, the clinic cannot flourish in the long run if the flow of sap from the roots is cut off and the roots of medical science should remain firmly embedded in the departments of physics, chemistry, and biology. The preclinical professors and departments must serve as conduits for the transfer of new concepts and new knowledge from the basic sciences into the clinic. . . .

I do not urge that a preclinical teacher should neglect the applications of his subject, but neither do I think that he should be put under the pressure to teach these applications. This is the business of the clinical teachers who can do it much better. The important consideration in the teaching of any subject is to interest the student and to convince him that he can understand an apparently difficult subject so well that he can make use of it. It is not the content of the course which is important but how much the student really learns and understands. He must learn to think for himself with the concepts and tools of the discipline concerned. Once the basic concepts of the subject are mastered the application will be easy. Moreover if the subject itself is well presented in a clear and stimulating manner the student will see the applications for himself, even if they are not mentioned. Actually in my experience the student without the basic concepts is not prepared to appreciate the applications.

WALLACE O. FENN
The University of Rochester School of Medicine and Dentistry

There is real merit in having separate courses in the "basic sciences," but every effort should be made not only to relate the material, as originally presented, to clinical medicine when this is appropriate, but hopefully to have really effective liaison between "basic science" departments and clinical departments. This liaison, I think, might be best achieved through particular individuals who would be active both in "basic science" and clinical departments in an effort to insure participation of clinical departments in "basic science" teaching, as well as to insure "basic science" department participation in the so-called "clinical years" of medical school. Hopefully, this latter participation of "basic science" departments might be arranged in such a way that some of the repetition of basic science material would be planned rather than unplanned.

WILLIAM L. FLEMING
The University of North Carolina School of Medicine

The process of developing a medical student into a professional physician is so huge a task that it must be undertaken, part by part, and step by step, in a program covering a period of years—and carrying grave risks of incoordination. A most difficult probem is to operate an

efficient curriculum that incorporates two essential but somewhat competing principles, namely, that each unit retain internal coherence and yet make a recognizably indispensable contribution to an integrated educational plan. If internal coherence within units is achieved by overemphasis on independent scientific disciplines, the resulting sacrifice of integration between units leaves the atomistic curriculum against which there is just revolt. If, at the other extreme, vertical integration is achieved by overemphasis on immediate clinical application, with resulting sacrifice of internal coherence, there is danger of returning to vocational training.

. . . a horizontally organized curriculum depends for its integration upon vertical indoctrination of the faculty, lack of which constitutes the heart of our difficulties. This deficiency occurs in two varieties, ignorance of precisely what is taught outside one's own course and inadequate knowledge of the vertical extensions of our own fields. A teacher of cardiac physiology, for example, cannot afford to remain completely ignorant of clinical cardiology any more than the teacher of clinical cardiology can afford to lose contact entirely with cardiac physiology. In defense of the faculty it must be said that they can rarely, *as individuals*, familiarize themselves with what is being taught elsewhere, or extend their vertical knowledge to the extent required. But *collectively* they can and should do so; there is no rule that requires a faculty to educate others and not itself. If reduction in teaching, research, and administrative loads is required to make faculty education possible, then this must be done. There can be no escape from the fact that integrated teaching demands integrated teachers. Sooner or later we must abandon our faith in that magic that says students will readily integrate precisely what teachers do not.

JOHN S. GRAY
Northwestern University Medical School

In essence, those who propose a more highly integrated presentation of the preclinical sciences seem to imply that, by presenting the varied subject matter of present curricula in some altered temporal juxtaposition, it will become possible to get around the geometric axiom that "the whole is the sum of its parts," and that the student, so exposed, will finish knowing more than any of his individual instructors. Perhaps the latter is the case even now, but this is not specifically because of the curriculum! The notion that something will be lost or missed if the student is not told everything at once, as it were, appears to be a slur on the intelligence and integrating ability of our students and of our clinical faculty. To this writer the second two years of medical school should consist of one continuous integrating experience, and if this is not the case, then fault must be laid at the door of our clinical faculties. Upon them and their pedagogical practices must ultimately rest the burden of integration of the medical sciences. . . .

The preclinical faculty presents or makes available to the student the parts of our intellectual edifice. It is ultimately for the clinician and student, together, to integrate these into an orderly whole. This is a considerable challenge to the overworked clinician who left medical school twenty or more years ago. May I suggest that if all the effort now spent in discussing an integrated curriculum were, instead, focused on the continuing education of our clinical faculties in recent developments in the preclinical disciplines, I would feel much more certain that there would result an improvement in the ultimate product of our efforts—the graduating medical student.

PHILIP HANDLER
Duke University School of Medicine

Excerpts from the letters on vertical integration in teaching basic sciences

The traditional role of the basic sciences is to serve as a bridge between undergraduate coursework in physics and chemistry and the clinical coursework. This tradition presupposes that clinical teachers still have little or no cognizance of any scientific approach to the solution of biological problems of a medical nature. Certainly we must question this rather untenable supposition. Increasing numbers of clinical teachers are also investigators of great scientific repute, although many others with an abundance of clinical acumen are still empiricists at heart. . . .

With the accession of scientists in the purely clinical fields, what remains for the basic science teacher? First of all he should be in the closest possible contact with changing theory in his own field, in other basic science fields, and in the fields of physics and chemistry, so that he can be in a position to transmit his interpretations of these developments not only to his own students but to his clinical confreres. Secondly he should continually examine the manner in which his

own field is changing (i.e., physiology to biophysics, anatomy to molecular structure, microbiology to macromolecular relationships, pathology to cytochemistry, biochemistry to thermodynamics, etc.), so that graduate students and young physicians who apply for training can be advised about suitable preparation. Somehow the basic science fields must bleach out the black stigma cast upon them by Linus Pauling who advises young M.D.'s seeking training as clinical investigators to completely by-pass the basic science departments and apply to the departments of physics and chemistry. Most basic science teaching departments today are only moss-covered footbridges over quiet Flexnerian backwaters, whereas they should be towering steel spans over the raging torrents of modern medical research.

L. M. N. Bach
Tulane University School of Medicine

1. The 2 approaches you mention, namely the teaching of basic sciences as isolated subjects versus more emphasis upon their clinical application, are not clearly opposed alternative approaches. Let me ask, would you have us teach (for acid-base balance): (a) the nature of the dissociation of weak acids or (b) the behavior of the total serum Co_2 during open-chest surgery? Would you have us teach: (a) osmotic pressure and the nature of the protein molecule or (b) the therapeutic value of serum albumin? Would you want us to teach: (a) the nature, source, and fate of the ketone acids or (b) the prevention and therapy of ketosis?

If any choice has to be made between these pairs, it must always favor the first, the fundamental understanding of the situation, the *sine qua non*. Furthermore, the medical educator who has not recently participated in first-year medical teaching forgets how largely we must teach fundamental, often elementary, relationships.

If a student understands the behavior of tricalcium phosphate in the presence of extracellular fluid, he has no difficulty later in learning what the normal serum calcium and phosphorus should be and how they change in disease.

To me the question is more, what should we do with a minority of medical science teachers who either do not know or will not tell the student why the molecular principles they teach are essential to a complete medicine? What shall we do about those of our clinical colleagues who forget at what an elementary point we must begin to teach students to think, when possible in molecular terms? What shall we do about those of our colleagues who consider our students ignorant if they don't know the precise value of the normal serum cholesterol?

2. The suggestion that basic medical scientists teach as they do out of inferiority feelings is not worthy. When men of different interests and training are to cooperate on a vital task, we need the wisdom of those who have gone before us. Let us at least accept the sincerity of those who may believe that a thorough discipline in biological chemistry or physiology or the like (with or without isolation) is the first objective. We must even take as sincere those who feel that it is unimportant for them to tell the students why they believe this, or unnecessary for them to learn what medicine is about, or for them to limit their exploration of minute metabolic details. Instead let us not appoint the latter to positions of responsibility in medical education, no matter what their scholarship. Medical education is continuously selecting its members. If there is a better population possible let us find it, keeping, however, a realistic contact with the job to be done and supporting those we have selected to do it.

May I also suggest that we as medical educators might be tempted to tell the organic chemist what he should teach the premedical student, but we would probably ruin his course if we did so? We depend upon him to resist subservience of this type.

3. Perhaps I have not been at the right medical schools to observe the solution by clinical teachers of their teaching problems. There is this inherent difference between first-year and fourth-year teaching: medical education has to begin at a point, and only as one gets away from a point has holistic teaching any meaning. Most builders (even at Western Reserve) accumulate some lumber before they begin to drive in the nails, although the oak flooring is delivered later. When the clinical teacher carefully leaves the chemical part out of his teaching, the result is more conspicuous than when the biochemist leaves surgery out of his teaching. When the clinical teacher calls in a biochemist to present the chemical aspects, he acknowledges that it is unimportant for him to be informed about chemical matters, a lesson the student never forgets. In this respect your description of clinical teaching does not perhaps apply universally. Holism is a steadily increasing responsibility as the student progresses through medical school, not because the student must have matters integrated in order for him to learn, but because the teacher tips his hand as to whether he considers worth his time all that the student is asked to study.

Halvor N. Christensen
The University of Michigan Medical School

Thirty-five years ago many of our clinical teachers at the professional level were frankly skeptical that the biochemistry of the preclinical years was of any importance to the medical student in his clinical years or in his subsequent practice. Discouraging statements made by the clinical staff to juniors and seniors, and passed on by them to the preclinical students, placed the teacher of biological chemistry in a defensive position. For this reason, he tried whenever possible to point out the advantages of biochemistry to clinical medicine. I have observed now this attitude has been reversed, and now since many of the clinical staff are engaged in basic research problems, students are repeatedly urged to obtain a good foundation in the basic sciences. This attitude I am sure has encouraged many of the departments of biological chemistry to revise their teaching of medical students to make it more in line with what they would present to a student who is going to make a career of biochemistry. This I believe is good if it is not carried too far. Our present clinical teachers, as a group, are well prepared to interpret the clinical applications of biochemistry, and it is the duty of the basic science teacher to provide a good solid background so that the student may understand these relationships.

This does not imply that the preclinical teacher should not on occasion point out the practical value of facts presented in the lectures and laboratory work. If, however, too much of this is done, the student soon develops a feeling that you are trying to sweeten a bitter pill, and as a result he will overemphasize the practical applications at the expense of basic facts. The best results with medical students, I believe, are obtained if one presents the preclinical course as being important and interesting in its own right, even though this may not be immediately apparent to the student.

A. A. Christman

The University of Michigan Medical School

. . . it is necessary to prepare today's medical student not for the medicine of 1957–58 but for 1967–8, 1977–8, 1987–8. What the latter will be, no one can say, but one thing that is evident for all our past history, and particularly the developments of the last 50 years in medicine, is that it will be the application of basic fundamental principles. A training in these will be a much better preparation for the medicine of 10, 20, and 30 years from now than a training in those aspects of anatomy, biochemistry, physiology, and pharmacology which are of current but temporary clinical interest. When I talk today with graduates of 20 years standing, I am impressed by the fact that the complaints of a lack of physiology to keep up with current developments in medicine do not come from those who as undergraduate students worked at the physiology of that day, but from the student who in 1932 considered it too academic and is still frustrated to find this same material is now a large part of today's clinical medicine.

The importance of this matter is indicated by the fact that the most outstanding figure in South American medicine has stated the one single reason for the difference between the standard of medicine in South America and North America is that the basic medical sciences have not been on their own feet and that their teaching of undergraduate medical students has been subservient to clinical medicine. He is also of the opinion that this is why France lost her leadership in medicine and why it moved to the United States.

L. B. Jacques

University of Saskatchewan College of Medicine

In those schools sufficiently fortunate to embody a significant group of full time men actively engaged in basic problems of medical science (e.g., physiology, biochemistry, and microbiology) the problem of integration of these sciences with clinical medicine can, I believe, be optimally achieved. This end may be accomplished on the principle that the patient constitutes the equivalent of the laboratory in courses in the preclinical years. If students are taught with their patients as a text, and in small tutorial groups by instructors well versed in pathological physiology, then integration of the most meaningful sort is inescapably accomplished. In the achievement of this aim, perhaps the most useful aspect is that of indoctrination of the student with means of approaching his patients' problems with a "disciplined intellectual power" that will make his practice both meaningful and effective. If the student masters this scientific and critical approach, he will have gained more for his future in the practice of medicine than he would have by the acumulation of masses of basic scientific factual data. Of course he must have facts at his disposal, but his use of *those* facts will be most effectively developed in an atmosphere in which two-way discussion is possibly between student and mentor and in which the student's own patients constitute the text.

Robert F. Loeb

Columbia University College of Physicians and Surgeons

. . . clinical medicine is actually the application of the basic sciences to the treatment of human disease in the best historical tradition of the physician's art, i.e., his powers of observation, his diagnostic intuition and logic, his understanding of mankind, his integrity and compassion. It is true that clinical medicine can be and is sometimes practiced without an appreciation of its origins or a knowledge of the sciences on which it is based. However, I do not believe that many would contend that this is the best clinical medicine or the clinical medicine to which a University medical faculty aspires. One does not comprehend a science through its applications. One comprehends the application through the science.

COSMO G. MACKENZIE
The University of Colorado School of Medicine

If there are basic scientists opposed to a more clinical approach in basic science teaching only because they are afraid of becoming subservient to clinical medicine, they are narrow-minded indeed. I share the opinion of the others who believe that the preclinical student should be acquainted with the methods and the philosophy of the basic sciences as well as their results, because I think that this is part of the general culture and intellectual background to which the University student should be exposed, and the primary mission of the University, a center of higher learning, is to diffuse and promote culture and knowledge for their own sake.

SEVERO OCHOA
New York University College of Medicine

While I was trying to discover how I felt about the ancient "pure" versus "applied" controversy as it relates to basic science teaching in medical schools, I happened to read an essay about Tolstoy called "The Hedgehog and the Fox." In it the author, Isaiah Berlin, examines the views of a number of outstanding literary figures, philosophers, and historians and sorts them into the "hedgehogs," who yearn for oneness and synthesis, and the "foxes," who follow their individual (sometimes isolated) paths and are not made unhappy by diversity, complexity, and the absence of a Large Pattern. The hedgehogs, says Berlin, are centripetal people; the foxes, centrifugal. I was struck by the realization that a medical school faculty is simply a microcosmic representation of this sort of polarity.

Unfortunately, teachers are often stereotyped by their colleagues as isolationists (foxes) or correlationists (hedgehogs). Sometimes, the classification implies a moral judgment, and the ones who disagree with your view are "bad guys," while those who have seen the light are "good guys." This can be treacherous, as any tired teacher knows. For it is possible for the same individual to be an optimistic, nay, passionate hedgehog at 9:00 a.m. on any given day and a resolute and uncompromising fox seven hours later.

I am not sure that a discussion of the subject of the preservation of the pristine purity of the individual basic medical sciences has any meaning if the abilities, interests, desires, needs, consciences, and mood swings of the people who do the teaching are ignored. I am superstitious enough to believe that effective correlation among clinical and basic science teachers is not necessarily achieved merely by executive fiat, or even by elaborate restructuring of the curriculum. Nor do I think that curriculum-rebuilding enthusiasts do their cause any great justice by failing to give adequate credit to many fine teachers for excellent correlative teaching which is being accomplished under traditional systems. Successful syntheses are achieved by individual people, and the happiest syntheses of all are the correlations that are painfully pieced together within the individual teacher's brain. From the medical students' point of view, it doesn't much matter whether the brain is that of a basic scientist whose imagination is stirred by the potential clinical usefulness of tolbutamide in the treatment of diabetes, or that of a clinician whose primary interest in anemia has led him into a detailed study of porphyrin biosynthesis.

The basic science teacher can anticipate the student's later needs by emphasizing those aspects of his field which have clinical applicability. It seems to me that he can do this without being anti-intellectual, for there is enough aesthetic content in the anatomy, physiology, biochemistry, and pharmacology that is somehow related to human disease to satisfy the purest kind of pure scientist. In actual practice, basic science teaching slowly evolves in response to stimuli both from clinical medicine and from chemistry, physics, and mathematics. Surely the recent spectacular advances in cardiac surgery have had some impact on the teachings of the embryology and anatomy of the heart, and observations on patients with glycogen storage disease have led to the enrichment of our knowledge of glycogen biochemistry. This sort of evolution goes on all the time, and seems to me to be independent of administrative maneuvers to improve basic science-clinical correlation.

Although the basic science teacher may anticipate the student's clinical needs, it is unrealistic to expect most of our students to be able to comprehend the clinical circumstance he is preparing himself to understand at the time he is studying some basic science aspect of it. It seems unnecessary to remark once again that it is impossible to teach everything at once. It also appears to me to be unfair to ask a first-year medical student to correlate before he has collected one idea to rub against another. This is the strongest argument for a disciplinary approach. There is much to be said for the view that it is one of the clinical scientist's primary responsibilities to demonstrate the applicabilty of basic science information in his field. The other very telling argument in favor of a disciplinary presentation is the fact that ideas can be presented in a disciplinary setting that may not have proved to have clinical usefulness The presentation of such ideas, which may represent the well-spring of future clinical developments, should properly be done by basic scientists. In justice to the medical student, however, a considerate teacher will not permit his presentation to become too esoteric, although sometimes he may be terribly tempted to ride his personal research hobby hard and very inappropriately.

I have occasionally wondered how I feel about the pure and applied controversy, and I found out by reading Mr. Berlin's essay. Tolstoy, it seems, was a tremendous yearner for unity—he wanted desperately to be a hedgehog. Yet, he looked about him and saw diversity compounded, and the intricate interplay of personalities, each one an extraordinarily complex amalgam of hungers, abilities, needs, hostilities, fears, and concern for the peck order, and he couldn't characterize himself as anything but a fox. From my limited and superficial observations of medical school faculties, I'm with Tolstoy.

JAY TEPPERMAN
State University of New York College of Medicine in Syracuse

. . . the basic scientist can be truly happy in a teaching position in a medical school only so long as he carries on, in connection with his medical teaching, a vigorous graduate program. In essence, the clinician is content because he is educating men like himself—they all aspire to be physicians—and he consequently can look upon his place in teaching as a reproductive process. The basic scientist, particularly if he is not educated medically, tends to be discontented because he is educating men unlike himself—they do not, in the majority, aspire to be basic scientists—and he consequently can see in his teaching little prospect of reproducing his kind.

W. CLARKE WESCOE
The University of Kansas School of Medicine

The basic sciences are the scientific foundations of clinical medicine, and the writer believes that it is logical and realistic to present them as true pillars of clinical medicine rather than isolated disciplines. Medical education involves not only the acquisition of knowledge, but the development of the ability to evaluate facts critically and to understand their relationship to the entire problem of the patient. Learning involves correlation of information. To be useful, it must be assimilated with the knowledge already acquired. Presentation of clinical applications of material favors correlation with knowledge from other basic sciences and from clinical subjects. Greater enthusiasm and better retention of knowledge results when students can appreciate that the knowledge contained in the course is something that he needs in order to practice good medicine intelligently.

ROBERT WOODBURY
The University of Tennessee College of Medicine

FORMAL COURSES IN THE HUMANITIES AND SOCIAL SCIENCES IN MEDICINE

It has been argued that formal courses in the humanities during a period ordinarily considered a part of medical education can serve several functions. Proponents of this idea believe such courses can provide an opportunity to continue interests developed in premedical education and serve as an outlet to break the lock step of professional education. Through their concern with the uniqueness of man and his ability to formulate and decide among possible ends to which he can direct his energies—which is in contrast to the general-

ized impersonal humanity of science—these courses can be important in the education of the physician. The problems of value and choice and isolated uncommon experiences in thought, conduct, and feeling that are the essence of the humanities are not centers of interest in other areas of medical study, except possibly in psychiatry.

Questions have been raised about the appropriateness of including formal courses in the humanities in the medical curriculum. The present program is already crowded with subject matter considered essential to the professional education of the student. Introduction of additional areas of study must necessarily reduce the time available for existing programs, unless the total program is lengthened, which does not appear to be a desirable solution. The potential interest in formal courses in the humanities among students already embarked on clinical medicine has also been challenged, as some of the letters in the following section attest.

The social sciences, or more accurately the behavioral sciences, have a more direct relationship to medical studies. The sociological and psychological aspects of man must be considered important in education for any profession and especially for those related to health. The student should be provided with insights and tools that will help him perceive the patient within the totality of a given situation, to understand the effects of social and psychological factors on illness and the impact of disease on the patient and his family. Whether this can best be done through formal coursework in these subjects or by orientation of the student to such concepts in his training in clinical medicine was an unresolved question as discussed in the Institute round tables. Furthermore, as brought out by Dr. Stokes' commentary below, the increasing maturity of the behavioral sciences may in future warrant their inclusion with other basic sciences in the medical school, although the time has not yet arrived for separate departments of medical behavioral sciences.

Excerpts from the letters on formal courses in humanities and social sciences in the medical curriculum

In discussing the controversy over the incorporation of the humanities and the social sciences into the medical curriculum, it is necessary to restate the essential goals of undergraduate medical education. Since the primary factor in the improved health of the community and the better care of the sick over the past fifty years has been the addition of science to the healing arts, our first obligation as medical educators is to produce scientific scholars. This serious responsibility has two phases: the inculcation of scientific critique and the creation of a familiarity with the various medical sciences, basic and clinical. Disciplined intellectual power is more important than the acquisition of knowledge although the two are in no way incompatible. Recognizing the current and increasing complexity of the medical sciences, it seems an almost insuperable task to encompass the field in four years. Therefore, rigid scrutiny must be given to any suggestion for the introduction of new courses that do not further the scientific development of the student.

The humanities properly belong to the college years pedagogically and as avocational material thereafter. They should not be taught in medical school. Although the cultural qualities of an individual are pertinent to his success as a mature physician, they derive more from his family background and his intellectual makeup than from his formal education in the humanities.

Social responsibility and the compassionate response are not learned in formal pedagogy. They are either inborn or cultivated by exposure to respected persons who have those qualities.

DANA W. ATCHLEY
Columbia University College of Physicians and Surgeons

Consideration of the possibility of including study of the behavioral sciences in the medical curriculum requires first of all the development of clearly defined objectives for such courses. Although it is fundamental for any profession that can directly influence human welfare to have qualities like compassion and social responsibility valued highly, these are qualities that exist as motivational aspects of the behavior of any man—they are not constructs that are easily dealt with as observable data of a science. No one has yet shown that values and needs and interests, which are presumably the bases out of which qualities like compassion and social desirability arise, can be specifically taught as part of the subject matter of a course. Such qualities are therefore no more suitably designated as specific objectives of a course in the behavioral sciences than they are as objectives of a course in internal medicine.

The kinds of objectives that would be appropriately designated as specific to education in the behavioral sciences might include the following (note that these are only samples and do not constitute a suggested outline): (a) Development of an understanding of how observable behavior can be viewed and studied scientifically; the dynamics of relationships between personal characteristics and learning, manifestations of illness, reactions to treatment, etc.; the effects of environment and environmental pressures on behavior; the effects of methods of communication on interpersonal relationships. (b) Acquisition of a fund of knowledge in the areas of theories of learning and motivation, and of techniques of measuring psychological effects on organ systems.

The knowledgeable application of behavioral science principles leads to behavior that is both compassionate and responsible, just as the application of medical science principles leads to accurate diagnoses and appropriate treatment.

HELEN HOFER GEE
Director of Research, AAMC

If premedical education is to be primarily considered as technical preparation in the natural sciences, then it might be argued that it is necessary to continue the teaching of the humanities into at least the first two years of medical school in order to maintain a balanced curriculum. This would tend to blur the sharp distinction that has existed in this country between the liberal arts colleges and the medical school.

If, however, premedical education continues to stress a broad liberal arts education, with humanities at its core and the natural sciences as a necessary but a secondary adjunct, then to continue teaching the humanities in medical school would serve only to distract the student at a time when he is studying the basic sciences in an already crowded medical school curriculum. One of the important reasons for giving the medical student adequate free time during the first two years is to allow him to nurture any special interests in the humanities he might have developed during his four years in college.

The social sciences must be considered separately since they have shown an increasing application to medicine and share investigative techniques with medical science, although there is still a wide gap between the application of the natural sciences and the social sciences to medical research. I feel that eventually each medical school should have a separate department of medical social sciences that would carry on research in human behavior as applied to medicine and would have the responsibility during the first two years of teaching those aspects of psychology, sociology, and anthropology that apply to medicine. However, at the present time these disciplines have not matured sufficiently to deserve inclusion along with the other basic science courses. I also feel that such a department should be independent from the department of psychiatry for the same reasons that physiology is independent of medicine and surgery.

JOSEPH STOKES III
Massachusetts General Hospital

By virtue of his profession the practitioner of medicine is generally accorded a position of prestige in the community. Admittedly this has suffered somewhat in recent years; nevertheless it is still true to a significant degree and for this reason the physician should be prepared to deal with the responsibilities and duties which are imposed upon him by virtue of this special status. The greater his knowledge of humanities and social sciences, since both of these deal broadly with man, the greater his development and the development of his thought and experience, the more will the physician be enabled to deal adequately with whatever problems may be presented to him. Like all citizens, the physician has a second community responsibility, that of

being a thinking and responsible member of the democratic body politic. Limitation of his opportunities in the fields of the humanities and social sciences means limitation of his ability to deal thoughtfully with problems of politics, economics, and sociology.

L. M. Stowe
Stanford University School of Medicine

I feel that the humanities and social sciences should be available to the medical student at some time during his pursuit of his medical degree. We have evidence to controvert the argument that students in medicine are not interested in the humanities and social sciences. That all medical students be forced to take the same courses is unreasonable, be they in the humanities and social sciences or physical sciences. The more mature student will benefit most by being allowed to do independent work and exercise some judgment in the selection of his course work. The courses available to him should be those ordinarily taught by most colleges of a university including a medical school and should be at graduate level. In other words, formal medical college course work must be reduced in amount to allow more freedom in the curriculum of the medical student.

George A. Wolf, Jr.
The University of Vermont College of Medicine

I have several reasons for my belief. In the first place, the medical curriculum and required (or voluntary) reading on medical subjects are already very time consuming. If formal courses in the humanities were held, I would feel that work, effort, and discussions (in addition to lectures) on the part of the students would be necessary to have it mean much. I believe that students would be inclined to place very secondary importance on such work, especially when they came to the clinical years. Furthermore, "humanities and social sciences" covers a diversity of subjects, and medical students I presume would have as diverse interests in the various subjects as any other group of students would. Since choice of subjects would not be feasible in a medical school (unless it were adjacent to the undergraduate campus), perhaps only one or two courses could be offered to the medical students. Even if very carefully designed, it would be difficult if not impossible to select subjects of interest and value to all. Finally, I have the feeling that by the time a man gets into medical school he either does or does not have sincere interest in humanities or social sciences. If he does have such interest he will most likely continue to spend spare time on them. If he does not have such interests by the time he gets to medical school, it seems unlikely that a formal course in humanities will do much to stimulate him.

David P. Earle
Northwestern University Medical School

FAMILY CARE AND PRECEPTOR PROGRAMS

The final area in which comment was solicited prior to the Institute dealt with family care programs and preceptorships. These programs have for one of their important goals a realistic introduction for the student to firsthand experience with environmental medicine. The student is made aware of the total problem presented by a sick human being. The community becomes a teaching laboratory where the student can follow patients with some semblance of continuity, not only in the clinic and hospital, but in the setting of his home. The patient is seen as a whole functioning organism; he is not presented as a fragmented disease entity within a specialty field in the hospital or clinic.

In patients seen normally in traditional hospital or medical school environments the disease process is already developed. The family care program offers the student an opportunity to understand the importance of averting

disease as well as its early recognition and active treatment. Problems raised by chronic illness are brought into focus and the role rehabilitation plays is made clear. The aid that can be called on from the resources of the community in solution of health problems can be brought forcefully to the student's attention. He is given an opportunity to accept his responsibility to the patient and the community of which he is a part.

Without proper supervision the students may become overinvolved with their patient families and spend excessive time, to the extent that other learning opportunities are neglected. If family care programs are introduced too early in the curriculum, they may precipitate reactions of anxiety and frustration in the student, who may have difficulty in recognizing the role he is to play. With his inadequate medical knowledge he cannot function as a physician, and his age and level of maturity prevent him from assuming early the role of family counselor. For these reasons the third and fourth year of medicine are probably more appropriate for such programs.

It is acknowledged that the programs are expensive in dollars and also in time, both for student and faculty, and the return may not be commensurate with the expenditure. If family care programs are to be successful, frequent conferences involving students, clinicians, social workers, sociologists, psychologists, and psychiatrists must be scheduled for discussion of the observations made by students. The faculty must also be prepared to accompany students on some of the visits if the maximum benefit is to be achieved. Care should be taken that students are not led to overemphasize the social and economic problems in illness that are more characteristic in the families of low economic status usually assigned.

Preceptorship programs are characterized by the fact that students are able to observe patients in their own settings where medical personnel is in a minority. Practical aspects of medical practice outside of the university setting are presumed to be better appreciated. However, in developing a preceptorship program realistic goals and teaching aims are often not well defined, and this, with its extramural location, makes organization and supervision difficult. The preceptors may not be chosen with the same care that other faculty members are selected, and they may not be made aware of the educational philosophy of the medical school. The practicing physician may be so pressed for time that he cannot devote much time to teaching.

That both types of extramural programs have vociferous critics is evident in some of the letters reproduced below. Although some in medical education have no quarrel with the objectives of the programs, they would seek means of achieving them in closer relationship to the hospital or clinic. Even among the proponents there is disagreement on operational details, notably on how soon they should be introduced into the medical program and how much time should be allocated.

Excerpts from the letters on family care programs and perceptorships

I am opposed to family care programs in the first two years of medical school. I am less strongly opposed to placing them in the last two years. I believe that the returns from this ac-

tivity are much smaller than those coming from concentrated study of patients and disease. The family care program in the first two years impresses me as "playing" doctor. As the new curriculum is presently constituted in many medical schools, all the scientific instruction is concentrated in the first two years. I think nothing should distract the student from concentration on the fundamental sciences. During these first two years, the student is too young, his authority would be nil, his presence of little importance to the family. I would expect the returns to be of little value to anyone involved.

JOSEPH C. AUB
Massachusetts General Hospital

. . . family care programs, properly oriented, controlled, and supervised, may make valuable contributions to medical education which cannot be obtained through the study of hospitalized patients only. It is apparent that the hospitalized patient presents a disease distribution, incidence, and severity not only quite different from that seen outside the hospital, but at times also presents a situation in which hospitalization could have been avoided by accurate earlier diagnosis and more effective management. Insofar as family care programs permit the student to develop along the lines of sharpening his capacities as a physician and his appreciation of family interrelationships, emotions, habits, culture, and economic status as they may affect the incidence of disease and the problems of providing a high quality of medical care, such an experience is productive, interesting, and stimulating. It is considered that family care programs cannot be justified as a technique for teaching any particular skills, techniques, or procedures in terms of general or family practice. If, during the course of such an exposure, emphasis is also placed on the need to be aware of the opportunities to prevent and control disease within the family unit, then an additional factor of significant value to society is being incorporated in the educational experience.

HENRY J. BAKST
Boston University School of Medicine

In January 1956 we (Univerity of Wisconsin) initiated an evaluation of our preceptor program through a questionnaire to alumni, interviews with students before and after the preceptorship, and discussions with the preceptors. The results may be summarized as follows:

Credits:

(a) Medical students feel that they are being treated like a physician; they feel a greater sense of responsibility for the patient.
(b) Students feel that their relationship with the patient and the patient's family is far better than in a University Hospital.
(c) Medical students are more perceptive about social medicine in the setting of the preceptorship than in the setting of the University Hospital.
(d) Medical students at Wisconsin look forward with enthusiasm to the preceptor experience. Students on the preceptorship are probably in a more receptive attitude for learning than at any other period in their Medical School experience.
(e) Alumni are enthusiastic about the program—alumni in academic or research careers are as keen for the program as alumni in practice.
(f) At Wisconsin, the Preceptor Program has not influenced students to enter general practice.

Debits:

(a) Students may develop too many short cuts in the history and physical examination.
(b) Communications with the preceptors need frequent attention.
(c) Students may see the preceptorship simply as preparation for an internship because of opportunities for acquiring skills and techniques.
(d) It may be difficult to strike the right balance on student responsibility.
(e) Students may gain a false sense of their ability.

The study of our Preceptor Program supports the sentiment that Medical Schools vary considerably in their problems and their needs. There is general agreement that the Preceptor Program is a valuable part of medical education at Wisconsin.

JOHN Z. BOWERS
The University of Wisconsin Medical School

It is my personal opinion that very little is accomplished by having students visit the patient's home and family. There are so many things that are much more profitable for students to learn in the vicinity of their medical school and teaching hospital than to have them spend time in the homes of patients, particularly when you realize that patients are aware they are students or young doctors and, therefore, tend to consider these visits as a sort of game or pleasant relationship which will accomplish little from their personal points of view. Students have been urged, and still are urged, to become acquainted with the family in the hospitals and clinics, asking them to visit with them, obtaining details of histories and other examinations which may be necessary, particularly in view of possibilities of familial and genetically determined diseases. A good example is the survey of families of patients who have sickle cell disease. Furthermore, it seems to me that this phase of training develops very rapidly later in life and is actually related to the over-all environmental development and background of any person who may go into medicine. It stems from his early life, including his own home life and his associations with friends and relatives.

G. E. Burch
Tulane University School of Medicine

Should the medical school daily away the time a student could spend in such an educational environment by sending him from the school for a limited experience to see how medicine is currently practiced and how the economics of practice are managed? Would it not be better to thoroughly ground him in the methods of studying sick people, to make him familiar with new advances in the sciences and in medicine, and to give him the opportunity to participate in the search for new knowledge so that he might later, as an investigator, teacher, general practitioner, or a specialist, continue the improvement of the practice of medicine, be it in an urban, suburban, or rural community? The objective would be to educate him for the future rather than make him familiar with some limited type of present-day practice. The faculty of a medical school considering the establishment of preceptorships might ponder on these questions.

John E. Deitrick
The Jefferson Medical College of Philadelphia

It would appear that the purpose of this program (family care program) is the introduction of the student to the total problem presented by a sick human being. With this purpose I would have no disagreement. There seems little question that the nature of the traditional medical curriculum in the first two years tends to make the student insensitive to the social and psychological problems presented by sick persons. It is also true that the teaching of this aspect of illness is difficult on a busy public ward.

If this defect in medical teaching is to be corrected the student should have contact with patients early in his career in medical school. Such an experience should be designed to permit him to know the patient as an individual and to understand the role of social and emotional factors in his total problem. A properly designed family care program is one way of achieving such an experience. It is probably not the only method.

There are several questions which must be asked in a critical evaluation of a family care program. The first question is the relative role of the direct experience in the home and the discussion and supervision that accompanies the program. It is obvious that visiting patients in the home, in itself, offers no insight into social and emotional factors in illness. Many practitioners of medicine devote a large portion of their lives to visiting patients in the home and remain almost completely unaware of these problems. It would appear that the value of such an experience is based on the skill and teaching ability of the supervisor of the program. To be effective, this teaching would have to be done in small groups and hence would be time-consuming.

Another problem presented by a family care program is the low economic status of many of the families. This may lead to an overemphasis on the importance of certain social and economic problems in illness. It would be preferable if the students had a view of illness in the various strata of society.

The practical problem in the introduction of such a program into a medical school is related to time and money. The time of the student can be obtained, I believe, by a reasonable revision of the curriculum. The time of social workers and medical instructors involved in such a program is a more difficult problem. Here we must deal with both the financing of the program and the shortage of medical social workers. It would appear to me that the application of such a program to all the students would require good organization and a large number of supervisors. Without good organization, careful supervision, and an imaginative teaching program, I believe the program might be harmful to the student. Moreover, I believe the experience should be prolonged to be of value.

Might not a similar program operated within the environs of a teaching hospital be equally valuable? Is there anything intrinsically valuable in the home visits? These questions trouble me. I believe that most of the value of the family care program results from an imaginative and informative discussion of the problems presented. If this is true, could not the students during the first two years in medical school follow a patient for a long period of time and participate in discussions with the physician and social worker regarding the patients' problems? This would have the advantage of simplicity in planning and would economize on time and personnel.

RICHARD EBERT
The University of Arkansas School of Medicine

Extramural preceptorships and family care programs are related but separate questions. They are related in that they concern the preparation of the medical student to assume his full social responsibilities in the practice of medicine. They are separate in that the emphasis in these two programs need not be placed on the same things. Some preceptorships might deal more with technical matters in home care of patients, while others might stress the social-psychological aspects.

It is my opinion that, in its own way, each school should make the student fully aware that the family is the basic unit of our society, and that it is in the disturbance of our intrafamilial adaptations that much disease has its origin. Students of high intelligence can be taught to get at the facts by their skill in interviewing or history taking—without wasting valuable time in leg work to visit the homes. It is easier to teach bright students than dull ones. The bright ones can see for themselves and are aware from their own family life of many of its problems.

One of the principal objections to programs in which students visit the homes of the sick is that these visits are confined to the poor, who must submit to intrusions of their privacy that would be resisted by those more well-to-do. Thus, the student fails to learn that there is often more intrafamilial stress among the rich, or semi-rich, than among the poor—many of whom have beautiful family lives. In confining visits to people on the wrong side of the tracks, the students may get a distorted view of these matters, which will not be straightened out until he then deals with "private patients."

WILLIAM S. MCCANN
The University of Rochester School of Medicine and Dentistry

The changing pattern of medical practice in the United States gives one pause as to its ultimate destination. The medical curriculum is the object of continuing scrutiny and revision. No panacea has been or will be available in such a dynamic field of human endeavor. From the preceptorial exposure, Wisconsin men and women return to the academic scene more mature, broader in their viewpoint, and more attuned to the requirements of the practice of medicine. In the judgment of men and women years removed from the Wisconsin Preceptorial Plan, this experience is the most important single educational unit of their undergraduate years. In my judgment, this is a rather disproportionate estimate but there has been no change in its evaluation at the hands of Wisconsin men and women over the years.

WILLIAM S. MIDDLETON
Veterans Administration

Unquestionably, one of the primary objectives of a medical school is to give to every student a thorough scientific indoctrination. There follows quite naturally an obligation to give him an opportunity to apply scientific method to the diagnosis and treatment of disease. Indeed, immediately upon graduation the student spends several years of training in doing this very thing. Is it not also important for the student to learn by first-hand experience that there are problems in medicine that the laboratory cannot solve? Or should we reject a study of these problems in medical school as something outside the scope of scientific medicine and leave it to the student to learn the hard slow way, by trial and error in practice? His resultant mistakes may not be so obvious and dramatic as similar scientific errors, but they are just as real, just as damaging.

It is our hope that, by arousing an awareness of psychosocial problems at a time when the student is being steeped in laboratory method, he may bring to bear the same scientific approach to the solution of these problems that he does to those of physical disease. The laboratory aids available to the clinician of 1900 were weak reeds indeed as compared with those of today. Although the solution to the problems of psychosocial medicine may not lie in a similar de-

velopment, we should bring to bear on them the same interest, the same spirit of scientific inquiry that has produced such great rewards in other fields of medicine.

JOHN MCK. MITCHELL
The University of Pennsylvania School of Medicine

. . . that the intramural training of the medical student brings him in contact mainly with individuals in whom the pathogenic process has already developed. He has little or no opportunity to observe and contemplate upon predisposing factors in the home or work environment which may have contributed to the initiation of the patient's illness during the period of prepathogenesis, as for example when psychosomatic illness is involved. Such predisposing factors, existing in the host or in the environment, are a component part of the natural history of any illness, and therapy that fails to take them into consideration does not remove the cause of illness, and achieves only temporary results.

. . . it is apparent that a family unit affords a unique opportunity for demonstrating preventive services in a prospective rather than retrospective manner. Bedside teaching is recognized as the best method of teaching clinical medicine, but it has inherent defects as a medium for teaching preventive medicine. The latter is primarily concerned with measures that may be directed toward man or his environment in anticipation of disease and before the disease process is initiated. Such measures can better be illustrated to students on healthy members of a family group than upon bed patients. When the latter are used as a point of departure for such teaching, the retrospective approach must be employed—contemplating what might have been done to prevent the disease from reaching the stage observed.

H. PACKER
The University of Tennessee College of Medicine

This would suggest that the place for home care programs is in the clinical years which really extend from the third year through the residency. Just as the clinical clerk and the house officer on the medical wards learn the practicalities of medical care in terms of a deep understanding of basic scientific principles, so the student or house officer in the patient's home should also be made constantly aware that the patient has not only social and economic problems, that he is not alone a person and a member of a family, but that he also has some biological disturbances that need intelligent management. In other words the student must not lose sight of the fact that art and science are wedded whenever illness strikes or threatens to strike a human being. It is only that under various circumstances there should be different degrees of emphasis.

SAMUEL PROGER
Tufts University School of Medicine

There is no question that some subjects might be taught particularly well by the preceptorship method. A close relationship develops between student and teacher in a preceptorship, and the preceptor is able to determine areas of deficiency in the student as a result of observing him under the stress of practice and give him needed help. But there is one great obstacle to this form of teaching—lack of adequate supervision and direction of the preceptors. In many instances county medical societies have been asked to choose preceptors; in others the position of preceptor has been passed on from one physician to another, each one choosing his successor. Rarely, if ever, have preceptors been recruited with the same care exercised in selecting other members of the faculty, and not even the requirement of scientific performance, unrelated as that may often be to teaching ability, has been a criterion. Supervision has been dependent upon student reports or very occasionally on circuit riding by some member of the faculty. Lacking clearcut criteria for performance, the student and supervising faculty member alike must be at a loss to determine anything but the grossest deviation from good teaching practices. A notable part of the supervisory problem is the lack of definite goals for preceptor teaching. Some preceptors believe it is their mission to teach physical diagnosis or "something out of the book"; others consider that they must show students it isn't necessary to do things as they are taught in the medical school, that "you can get away with a lot less."

Presumably an extramural preceptorship that was organized within a department under the supervision and discipline of a full-time department head could be a useful adjunct to clinical teaching. It would require frequent meetings within the school to set realistic teaching goals and define teaching aims, and it would require constant review of the practices of the preceptors

themselves. This has never been done to my knowledge, and the Kansas experience while a step in this direction is a long way from it.

Until it has been demonstrated that extramural preceptorships can accomplish maintenance of high standards in teaching, I believe that any school that uses them must be considered to be providing its students with second-rate teaching, and that extramural preceptorships presently in existence should be abolished or reorganized.

GEORGE G. READER
Cornell University Medical College

If students are to learn how patients react to disease and how to manage the problems of living associated with illness, family care and home care provide a useful means of giving them this experience. How much time in the curriculum should be allocated to this activity, though, is an open question, and until research in medical education is better established it must remain open. Common sense would suggest that family care should be planned with the same attention that is bestowed on a laboratory exercise where consideration is given to exactly what each aspect of it is designed to teach. Our own observations lead us to believe that students obtain the most benefit from taking an active part in giving care to sick people and meeting and solving medical problems as they are affected by the social setting—with the help of physicians, nurses, and social workers who are experienced in this work. A physician whose entire training has been in laboratory investigation might be expected to have even more difficulty than the average medical student in dealing with the frustrations of complex life situations in his patients, and be quite unsuited to teaching patient care even though quite skillful at transmitting knowledge about blood electrolytes.

Those opponents of family care programs who say that the student learns best from personal experience in his own family ignore the fact that medical students have an extraordinarily narrow range of personal experience compared to the population at large. They come from middle class homes and spend a prolonged adolescence in the splendid isolation of academic life. Unless some definite effort is made to acquaint them with the kinds of problems their patients face, some of them may never develop an understanding of their job as physicians. The information is available and can even be systematized to some degree. It would seem foolishly stubborn to deny that it should be taught at all, if there are those available on the faculty who know how to teach it.

GEORGE G. READER
Cornell University Medical College

There can be little argument against the fact that the student has "observed" social interaction in his community, family, and medical school situation. In the first two instances this is as a lay individual from the standpoint of his experience; if this be considered education, the student is "lifting himself by his own boot straps" and the student is "training himself." In the last instance it is an experience in an artificially created situation.

The extramural preceptorship in the small community places the student in a social unit whose interaction he can at least partially grasp during his stay. He is purposely removed from the influence of his own family constellation (aside from his wife and children) so that his observations may be more objective. He is then asked to meet real problems with real people in their own setting where medical personnel is in the minority in numbers. He is under the supervision of a man intimately acquainted not only with the patient medically but socially and economically as well.

VERNON E. WILSON
The University of Kansas School of Medicine

Surely it is an interesting commentary on the vagaries of progress that at this very stage in the history of medicine, when the contributions of science to health have reached unprecedented heights, there are evident two definite trends that threaten to weaken the role of science in medical education. The first of these is the movement to dilute medical curricula with time devoted to sending students prematurely into patients' homes in an attempt to inculcate social responsibility.

Certainly there is no profession in which social consciousness is of more importance than in that of medicine. The question to be asked, however, does not concern the importance of the doctor's social responsibility; it relates to the manner in which such responsibility can best be cultivated. Can it be taught, for example, by sending undergraduate medical students into patients' homes? I think not.

Social consciousness derives from a self-identifying awareness of the feelings of others—a trait which inevitably leads to sympathy, compassion, and responsiveness to persons in trouble. It stems in most individuals from family and cultural backgrounds. In medical school it can be encouraged only by precept; in short, it is not amenable to pedagogy.

The home-care approach to the social consciousness problem is open to serious criticism on the ground that it pulls the student away from the scientific environment of the university in order to confront him with practical sociological problems in their natural setting. That such practical experience is valuable cannot be denied. But while he is an undergraduate it is far more important for the student of medicine to devote his entire energy to mastering the principles of medical science rather than to acquiring practical experience. "For it is the oldest fallacy about schooling to suppose that it can train a man for 'practical life.' Inevitably while the plan of study is being taught, 'practical life' has moved on."

Furthermore, social consciousness can be encouraged just as effectively in a university medical center as it can be in the general community. Of the modern university hospital it can still be said, "science and charity, knowledge and pity, skill and sympathy are here installed in the service of mankind." Nearly every patient seen in a university hospital clinic or ward presents some sort of a sociological problem. And the contention that university clinicians, because of their preoccupation with medical science, cannot inspire a sense of social responsibility is of course nonsense. Scientific knowledge and human kindness are not mutually exclusive; obviously they must both be possessed by every physician worthy of the name.

It has been said that, "the good physician is he who, strongly motivated by compassion for those who suffer, acquires a hard head to serve a tender heart." Tenderness of the heart can be encouraged only by example, and hardness of the head comes only from mastering the principles of basic science. The doctor who today brings more compassion than knowledge to his patients is bound to do many of them grave disservice.

W. Barry Wood, Jr.
Johns Hopkins Medical Institutions

NOVEL APPROACHES TO MEDICAL EDUCATION

Several American medical schools that were known to have novel curricular programs in operation during the period of Institute planning were asked to describe their programs and to discuss the philosophies responsible for their design. Many aspects of these programs are referred to earlier in this chapter, and it seems an appropriate conclusion to reprint these descriptions here. The schools involved are Bowman Gray, Buffalo, Florida, Harvard, Johns Hopkins, Kansas, Stanford, Tennessee, Vermont, Yale, and Wesern Reserve.

The dean of one of these schools, Dr. George T. Harrell of Florida, is the author of Chapter 10, which puts the American patterns of medical education in historical perspective by contrasting the traditional and novel approaches to our educational dilemmas.

Descriptions of eleven novel curricular programs

The teaching in the sophomore year of abnormal physiology and pharmacology is quite closely integrated. One to four lectures may be devoted to physiology, and the next three or four lectures to the pharmacology of a given topic. Examinations are broken down into specific segments, each titled physiology or pharmacology, but a given test may incorporate varying proportions of one or the other of the two courses. There is no attempt in the laboratory to dissociate abnormal physiology from pharmacology, nor is there in our project teaching, our reading groups, or thesis work. These latter three are optional subjects which the student may take in lieu of routine laboratory work. We plan a much closer temporal sequence of teaching, presenting an over-all concept of disease from the anatomic and functional points of view. We have had numerous favorable comments from our students on the close correlation between pathology, physiology, and pharmacology in the sophomore year, and know of no significant unfavorable comments on this general philosophy. We have weekly clinics presented by the

clinical staffs with one member of the physiology or pharmacology staff present and participating. Effort is made to avoid simply a presentation of clinical material. We emphasize the patient as a take-off point for a discussion of normal function in the freshman year, and the disturbances of function and the pharmacological applications to correction of disturbed function in the sophomore year. Because of the complex nature of the laboratory equipment, we have arranged our experiments in rotation. Three to four groups of four students are working on a given experiment at any one time. They rotate from one experiment to another, coming to the equipment rather than setting the equipment up at their own table. This allows us to provide much more expensive apparatus than could be provided if we attempted to have all the students doing the same experiment at the same time. Groups of four students are allowed to select any reasonable laboratory project, submitted from almost every department in the school. Approximately 22 three-hour periods are reserved for these projects. Students have found this a fairly popular type of laboratory procedure during the four years that it has been made available to them. Well over half the class each year has elected this form of laboratory work.

HAROLD D. GREEN
Bowman Gray School of Medicine

We are now in the midst of a series of bold new manipulations which look toward strengthening, in some instances shortening, this program by the intercalation of the humanities and social sciences with the professional studies in medicine, the disruption of departmental barriers to effective integration, the incorporation of the internship into a broadened program concept, as well as other less controversial means. Twenty-five years ago the graduate of a medical school almost invariably took up the private practice of medicine. Today a whole spectrum of professional occupations may attract him. It is unlikely that a single educational program can provide equally good preparation for all of these possibilities. Under such circumstances it is the perception of a goal for its graduates, and not the appeal of a fashionable curricular catchword, which should dictate the development of a course of study by any medical faculty. It is the teacher who must translate the plan into action.

GEORGE E. MILLER
The University of Buffalo School of Medicine

The Professor of Medicine serves as a dormitory counselor for freshman undergraduate students, and serves on the preprofessional counseling panel in the College of Arts and Sciences for junior students. The Admissions Committee is using three members of the liberal arts faculty as full members. The Dean independently interviews wives of all accepted medical students. The medical faculty participated in a review of general education courses this year and discussions on revision of preprofessional sequences in biology and chemistry. Faculty members from the College of Medicine have lectured in freshman courses in general biology, and have given a block of lectures in the course of logic for sophomore and junior students. Continuing study of common modalities in the preprofessional or early professional training of students in all branches of the health sciences is being continued toward the establishment of a College of Health Related Arts (or Associated Health Professions). During the first year an experimental course in Growth, Development, and Variability has been taught from an interdisciplinary point of view. In the second year an interdisciplinary course in experimental medicine has been designed to serve as a transition between the basic sciences and clinical years. To emphasize a pattern of thinking, a study cubicle or "thinking office" has been designed. Each student starts his day at the study cubicle. He will be planning and collecting his data from essentially the same point of view throughout his four years.

GEORGE T. HARRELL
University of Florida College of Medicine

Our new plans are based on the following opinions: (1) a reasonable balance between enthusiasm for a possible new venture and appreciation of an already proven achievement should be maintained; (2) a greater degree of interdepartmental discussion and exchange of ideas than that presently enjoyed would be eminently desirable; (3) a rearrangement in the timing of the subject matter of the present courses would be advantageous. There are areas in which interdepartmental teaching could contribute enormously. However, it is urgent *first* to offer the students a contact with the philosophy, methods, and contributions of the separate established

basic disciplines prior to attempting a unified approach to problems of human biology. A decrease in the amount of subject matter didactically taught and a concomitant increase in free time can bring the students to the libraries during the preclinical years. A broader tutorial system would accelerate the orientation of the student and help him to use his free time advantageously. Any new curriculum in the preclinical years should rest squarely on strong individual departments. The interplay of different approaches is more desirable than the loss of identity of the various disciplines. A course covering each of the first two years was designed with increasing attention to the abnormal and disease states. Repetition is an important pedagogical technique, *providing* the repetition adds to, and extends, what has previously been presented. There will be much more opportunity for studies *in depth* of various problems of human biology. There is added impact when material is presented in its proper *biological* place. The philosophy of presenting and examining selected areas with great thoroughness, and emphasizing their nature as *models* rather than adopting the extensive or encyclopedic approach, is an extraordinarily fruitful way of teaching, providing that the material chosen for presentation is capable of application to other areas and is not unduly specialized.

MANFRED L. KARNOVSKY
Harvard Medical School

Students will be given the opportunity to enter Johns Hopkins School of Medicine after only two years of college, minimal requirements for admission consisting of elementary instruction in college biology and chemistry. Candidates will be encouraged to devote the remainder of their time to the humanities and the social sciences. The medical school course will begin with a combined college-premedical year. The students will be in residence at the School of Medicine. Two elective courses, neither one of which may be in the natural sciences, and a course in elementary physics—all given on the Homewood campus by the Faculty of Philosophy—will be required in the first year. Intensive instruction will also be offered at the Medical School in advanced chemistry, mathematics, and genetics. Each student will be required to elect at least one liberal arts or social science course in both the second and third years. At the end of the third year, he will be eligible for an A.B. degree. The proposed change will enable students to complete requirements for the M.D. degree a year earlier, and will provide a more expeditious course for students wishing to follow careers in the basic sciences of medicine and public health. It is proposed to strengthen the final year's clinical program by increasing the students' responsibilities so as to make it a comprehensive twelve-month rotating internship. During this fifth, or "intern year," each student will rotate through the major clinical services of the Johns Hopkins Hospital, and under the close supervision of the residency staff will carry out duties similar to those now performed by first-year interns. The student will carry the usual 24-hour responsibility for patients. In addition, he will be given a two-month elective period during which he may either take special work in basic science or additional clinical training in any one of the various departments of the Hospital. This plan will cut another full year off the period required for the education of doctors. It will avoid the conflict of senior students with junior house officers, and it will bring the student more promptly into the significant experience of a hospital residency. The schedules for the first four years of the medical curriculum will be based on an academic year of 40 weeks. The fifth year will cover the entire calendar year of 52 weeks. The students will have completed considerably more than the usual four years of college by the time they are given their A.B. degrees, and they will have been transferred from large college classes working at the comparatively leisurely tempo of a college curriculum to small classes of highly selected and strongly motivated colleagues living and studying in a graduate school. There will be a suitable point at the end of the second or the middle of the third year at which students may begin specialized training of two or three years as graduate students in any one of the preclinical departments of the Medical School or in departments of the School of Hygiene and Public Health. Occasionally candidates, after completing their introductory medical courses, will return to the Homewood campus to take doctorates in biology and biophysics. Free time must be scheduled in the fourth and fifth years after enough of the background and methodology of medicine have been mastered to make elective endeavor truly profitable.

W. BARRY WOOD, JR.
Johns Hopkins Medical Institutions

After an introductory program in gross anatomy, the departments of Anatomy, Biochemistry, and Physiology teach their subjects in an integrated fashion, without regard to departmental structure, as a program in "normal human biology." Into this program clinicians are integrated

at appropriate times. The second-year pathology, microbiology, pharmacology, and physical diagnosis are taught in correlated fashion as "abnormal human biology," with pathology serving as its framework. Teaching, in the last two years, is accomplished through the mechanism of case conferences, small groups, and bedside rounds. In these conferences basic science teachers participate. Half of the preceptorship quarter is spent with a general practitioner in a community of 2500 population or less. The other half is spent in a state hospital. Students no longer receive alphabetical or numerical grades on class standings. They are classified as superior, satisfactory, or unsatisfactory and receive evaluations in written form from faculty members.

W. Clarke Wescoe
The University of Kansas School of Medicine

The new curricular proposal is founded on four basic principles: (1) education as a continuum; (2) not all medical knowledge can be encompassed; (3) the medical student is a graduate student; (4) the curriculum is of secondary importance. We have attempted to abolish the sharp medical-premedical separation and to foster integration of the teaching efforts. This is being accomplished by teaching by subjects, or by areas of unified interest, rather than along departmental lines. It seems to give the student a fundamental core of knowledge basic to his needs, whatever his plans for a career in medicine may be, and to allow the student the opportunity to expand it as his ability, needs, and interest dictate. Time should be provided in large blocks of hours, days, or weeks; the student should have access to thoughtful advice in his decisions as to how unscheduled time should be used. Many medical specialties are not basic but belong in the postgraduate medical area. Experience in these areas should be elective. A mature, thinking individual has passed beyond that stage of his education where the function of the teacher is to stuff the student with "facts." We regard this as an eight-year university educational continuum. At the end of the third university year he is formally admitted to a five-year medical course, during the first three years of which time equivalent to a fourth nonmedical year is provided for work outside the School of Medicine. In the fourth, fifth, and sixth university years a conjoint course in the Basic Medical Sciences—fully participated in by the departments of Physiology, Biochemistry, Pharmacology, and Microbiology and partially participated in by the departments of Anatomy and Pathology—will be taught in multipurpose laboratories almost exclusively through an experimental approach. The time decreases as the clinical years are approached, while a second conjoint course, entitled Introduction to Clinical Medicine, expands as the clinical years come closer. In the clinical years the Basic Clerkship is a conjoint in-patient course taught largely by the departments of Internal Medicine and Surgery, with the participation of Preventive Medicine, Psychiatry, and Sociology as major contributors. The Child Health Program is both an in-patient and out-patient course. The out-patient program of the final year has been extended over 18 weeks to provide maximum continuity.

Lyman M. Stowe
Stanford University School of Medicine

Freshman students are admitted in four classes of equal size during each calendar year, at quarterly intervals, and each course of the curriculum is given each quarter of the calendar year. All students take the "courses" in the same sequence, otherwise the best sequential arrangement and correlation of courses are frustrated. After the completion of the first six quarters, students are required to interrupt their course sequence for one quarter. Before readmission to the seventh quarter, they must sustain a comprehensive examination on the basic sciences. They are ultimately graduated four times annually.

O. W. Hyman and T. P. Nash, Jr.
The University of Tennessee College of Medicine

A small group of junior students who had completed the requirement for admission to the College of Medicine are taking the courses of their choice on the undergraduate side along with the anatomical sciences in the College of Medicine. At the end of the second year each student will have completed all his requirements for the bachelor of arts degree and will have completed the work of the first year of the College of Medicine.

George A. Wolf, Jr.
The University of Vermont College of Medicine

The medical student is treated as a graduate student and given more than customary responsibility for his own development. A cordial relationship between students and faculty has been fostered by work in small groups. The ideal physician is one who has knowledge of the present moment critically evaluated. His problems can be solved only by the scientific method and he should have daily experience in using it. This plan creates an atmosphere favorable for learning rather than a unique curriculum. The presentation of a dissertation based on original investigation is one of the requirements for the M.D. degree. There are fewer than the usual scheduled hours in the curriculum. A student should be excited as well as taught. A tutorial plan has been introduced in the departments of pediatrics and medicine. Teachers and their attitudes are more important than curriculum structure and methods.

VERNON W. LIPPARD
Yale University School of Medicine

Here is a very brief summary of what I believe to be the basis of our continuing efforts here at Western Reserve University:

1. Medical school in four years should provide a broad general education in medicine.
   It is not possible to present to students everything that is important. Adequate opportunity exists for developing specialized knowledge and skill in graduate training. Each department and specialty should try to select, from the tremendous mass of material available, that which will contribute most to the basic medical education of the student. The presentation should give clear delineation of the scope of the particular field, and include intensive treatment of an appropriate number of these techniques which are most characteristic of the methods of the department.
2. Since medical students are carefully selected college graduates, they should be accorded status and responsibility appropriate to their age and ability.
   The term "undergraduate medical education" is a misnomer in most schools today, where 75 to 100 per cent of the students have the Bachelor's degree. Educational coercion is not appropriate at this stage, where medical students should be developing habits of self-education to continue throughout a professional career. M.D. students should have as much intellectual freedom as is accorded to Ph.D. candidates in our best universities.
3. A medical faculty should take positive steps to assist students to recognize their professional obligations to patients and their community.
   It is not enough in a professional education program to impart only knowledge and skill. There should be organized effort to help the student develop appropriate attitudes and objectives. This may be done in many ways, such as by close prolonged association with mature clinical preceptors and by teaching situations that give the individual student a real sense of continuing personal responsibility for the comprehensive care of selected patients.

In conclusion, I will point out that many clinical teachers now stress to students the need for concern about "the patient as a whole." The best way to get this idea across would be for medical faculties to consider "the student as a whole," in other words deal with students as what they are, a remarkably fine, intelligent, responsive, and sincere group of human beings who want to do a good job as members of the medical profession. Does anyone really believe that we make the most of our opportunity to work for four years with this splendid raw material?

JOHN L. CAUGHEY, JR.
Western Reserve University School of Medicine

CHAPTER 10

Traditional vs. Novel Approaches to Medical Education

BY GEORGE T. HARRELL
Dean, University of Florida College of Medicine

The evolution of the physician and his helpers

WHAT IS A physician? From an historic point of view, he was originally a priest who did his job through the spell of mysticism. The physician gradually evolved into a healer of disease, but as far as we know he continued to work alone with whatever he found effective—mystical charms, exotic powders, or crude drugs.

As the physician gained experience in dealing with disease, he developed certain skills, particularly in the care of wounds and fractures. Then, with the increase of knowledge in scientific and related fields, it became apparent that the physician would need helpers, and the first one who evolved seems to have been the nurse. Later, with the development of the science of bacteriology, one of the nurses became the person especially skilled in the control of infection as applied to the specific problems of wounds and bone-setting; she became the operating-room nurse. Now we are training operating-room technicians to use special skills without a scientific background. As other natural sciences developed, technicians were trained in the fields of chemistry, hematology, and radiology to do other parts of the job that were originally done by the physician. Today we should become more and more aware of the role of the social and other sciences that can furnish skills and tools for testing ability, aptitudes, and interests, and for understanding the behavior of people.

This evolutionary process in the development of the physician and his helpers is continuing at a rapidly increasing pace. As it goes on, we in the health sciences must remember we have come out of a general society; we must still follow the laws laid down by that society and must remain responsible to it for our actions. To be fully effective, we must be in tune with our times. What is the job of a physician? Historically the physician worked with one patient, and essentially this arrangement is unchanged to this day. In essence, patient care is a highly confidential, interpersonal relationship reduced to its lowest common denominator —two people.

With increasing emphasis on the cure of disease, physicians became organically minded. The only approach they could make originally was through those things they could see, feel, and measure with their hands. The basic biological science of anatomy developed first, and was applied quickly to surgery. Pathology, the first truly medical basic science, grew out of anatomy and became the basis for

diagnosis. The emphasis on physical diagnosis—the elicitation of specific signs and their correlation with pathologic anatomic processes—has already been referred to several times in the 1957 Institute proceedings.

Advances in medicine depended on advances in other sciences. For instance, the study of bacteria was not begun by a physician or even a biologist, but by a chemist who was interested in tartaric acid crystals. It was a physicist who discovered roentgen rays and their usefulness in demonstrating opaque objects. The science of genetics began with a botanist, the concept of evolution with a biologist, and the study of anesthesia with a chemist.

These physical and biological sciences became the floor on which the superstructure of medicine has been built. By applying these basic principles to the control of disease, and particularly to the prevention of infectious disease, modern medicine has brought about tremendous alterations in the causes of illness and death. Medicine should not take sole credit for these alterations, however. Other factors have entered in—the effects of war, of automobiles, and the stress of life in our time, to name but a few. Accidents of all sorts now kill more people than infectious disease. Degenerative diseases, about which we presently understand very little, and biological phenomena such as the development of congenital defects and malignant growths are among the leading causes of death today. Mental illness has become one of our major health problems, leading us to an awareness of the close relation between medicine and the sciences of sociology and psychology.

No longer do we think of the doctor's job as simply the control of disease. Health is more than the absence of disease. The doctor's job, therefore, is related to the whole problem of achieving and maintaining optimum well-being and usefulness.

The traditional approach to medical education

Traditionally the education of a doctor has been a liberal one based on the classics, with an apprenticeship system (so delightfully described in the following chapter by Dr. John R. Ellis) as the final phase. Most of this apprentice training was done by practitioners outside of the universities. This type of vocational training we have carried over to some extent in our present-day medical teaching.

About the turn of the century, Osler in particular began to emphasize clinical teaching. He took great pride in the fact that he brought the students back into the wards, to the patient's bedside. Then Welch helped to emphasize in this country the value of research as a special tool in medical education and the use of the laboratory as he had seen it abroad. His methods, of course, have been incorporated into the teaching of all medical schools in this country. Flexner then pointed out the disparity between the apprenticeship method of training physicians and an academically oriented program revolving around the university. As a result of his studies, most of the medical schools in this country came back, both academically and administratively, into the universities, where the emphasis was on education in the original sense—the leading out of an individual from himself.

Traditionally the liberal arts have been taught in colleges, where social experience has been a substantial part of the educational process. In this country, pre-

professional or undergraduate training has been kept distinctly separate from professional or postgraduate work. Abroad, the preprofessional and the professional levels have been intermingled, but in this country we have tended to approach the professional training of a physician as a superstructure on the foundation that has been erected somewhere else.

Should we continue to follow this pattern, or should we begin to look at education as a continuing process that starts with a baby's first experience and follows a continuous thread for the remainder of his life? The second method of approach raises problems of selection. How can students be selected early for professional training? Will there be so many candidates for professional training that our educational programs will be swamped? When should emphasis on the intensity of education begin—and what duration of an educational program will be tolerated by the student and by society?

Problems created by the increasing body of knowledge

The vast increase in knowledge, both general and medical, which has been so frequently mentioned by authors of the preceding chapters of this book, has

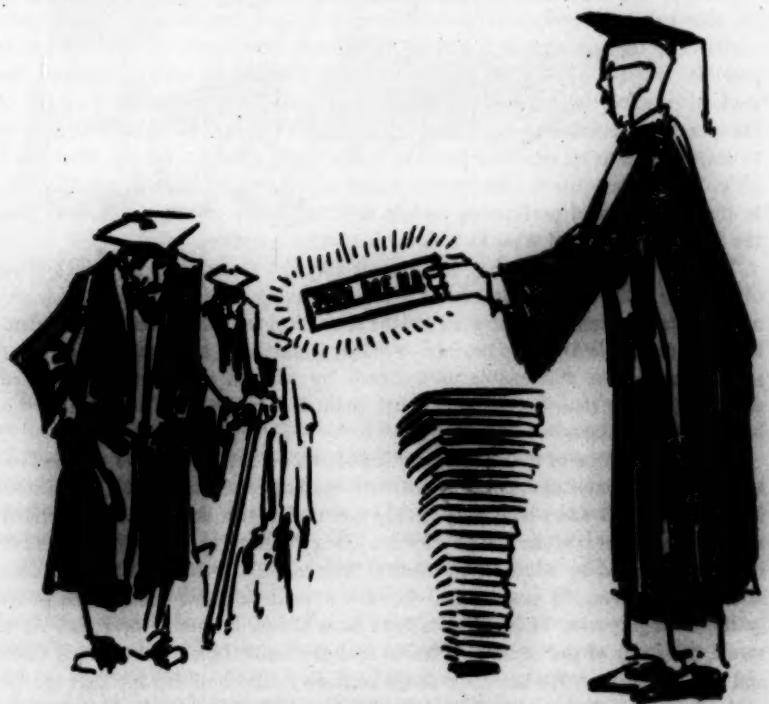

FIG. 1.—If the increase in medical knowledge continues, the physician's period of training may have to extend far into his expected years of productivity.

resulted largely from research in many fields and from the application of the experimental method to medical problems. In the field of medical education we have evolved our own variation of the experimental method in the case method of presentation. In this country particularly, emphasis has been placed on the hospital service, or the team approach, in contrast to the individual or virtuoso aproach that Dr. Ellis describes. This approach leads to great depth of study in one field, but does it lead also to less breadth of education?

Do we permit time for rumination and digestion, which are essential to growth, whether physical or emotional? These take time, for which there is no substitute. Because of the continuing increase in knowledge, however, we are forced to encroach more and more on whatever time the student has for rumination, contemplation, and digestion of knowledge.

More and more schools are basing their currricula on four quarters a year, on the theory that a physician works 11 months out of 12 and might as well get used to it while a student. This system allows less time for the development of understanding and for the development of judgment (which is one of the most important skills we are trying to teach). It fails to take into account the fact that biological and chronological maturity are not always parallel, but vary with different individuals.

Because of these problems, people have begun to experiment with new methods for shortening the process of medical education (see Chapter 9). These experiments raise the question: is it possible to shorten the educational process, and if possible, is it advisable? All of us agree that it would be wise to improve the medical curriculum. Our dilemma is presented graphically in Figures 1 and 2. If the increase in knowledge continues, the physician's period of training may have to extend far into his expected years of productivity (Fig. 1). On the other hand (Fig. 2), it is possible to shorten the period of training by limiting our teaching to the techniques of performing certain tasks. Whether or not the student gets the full appreciation of what he is doing is another question.

The most logical approach to solving our dilemma seems to be a re-evaluation of the curricular content. In recent years we have tended to de-emphasize the manipulative techniques that were taught so meticulously at the medical student level. Is it possible to set up models—whether in the basic sciences or in types of patient care—that will enable us to teach by selected and carefully planned examples, rather than by the traditional method of making the student learn a large number of facts?

In a re-evaluation of the medical curriculum we must keep in mind the psychological facets of students as well as patients—and of course the AAMC Institutes in 1956 and 1957 have been very deeply concerned with these facets. We must also ask ourselves whether the physician's job is the same as it was, or whether it has been changed by advances in medical science. As a direct result of our own scientific advances, the number and duration of acute illnesses—and consequently the average period of hospitalization—have shown a notable decrease. As a result, the study of the ambulant patient and of chronic illness is becoming more and more important. We have new drugs and new methods of therapy that can be perfectly well applied to ambulant patients who are seen at home, in the office, or in the hospital clinic. We also have new tools we can apply to the study of chronic illnesses now very poorly understood.

FIG. 2.—It is possible to shorten the period of training by limiting our teaching to the techniques of performing certain tasks. Whether the student gets the full appreciation of what he is doing is another question.

Novel approaches to medical education

Most of the newer pedagogic methods are student-centered. Some of these have as their goal the complete integration of knowledge and the complete integration of teaching, in the belief that by improving the student's perception and understanding it will be possible to reduce the number of actual facts that have to be crammed into his head. Teaching is done by committees or teams, and one result is the downgrading of the virtuoso, the champion, or the symbol of the profession.

Whether or not this system of integration is wise pedagogically will have to be shown by the experience of these educational programs. They have resulted in lessened emphasis on specific bodies of knowledge for their own sake and on the disciplines as such. The medical student trained under this system usually turns out to be beautifully prepared in the basic natural sciences, with a thorough knowledge of methods, concepts, theories, and techniques.

Other student-centered programs revolve around the individual student and depend on him to do the integrating. In such programs faculties are used across

departmental lines, and faculty members whose basic interest is in one particular discipline may be teaching in various other fields. It is sometimes quite difficult to tell from a man's teaching schedule whether he is a biochemist, a microbiologist, or a pharmacologist. In some schools biochemistry may even be taught by an internist.

Other schools center their teaching programs around research. They tend to draw the research program together and bring it to the student as a unified approach to a body of knowledge through a thesis. The same educational approach is used by all departments in the medical school, regardless of where they may come chronologically in the curriculum. With this emphasis on research and the scientific method in teaching students, the faculty is considered as a stimulating and guiding tool or unit. One result of this method, of course, is the stimulation of the faculty itself—but the principal objective is to teach the student a way of thinking that can be continued throughout the rest of his professional life.

Some schools have tended to decrease the distinction between the liberal arts, or preprofessional education, and the professional education. Experiments have been in progress with interdigitation of the senior year of college and the first year of the medical school curriculum, apparently with perfectly satisfactory results as far as can be judged from the student's knowledge at the end of his first professional year.

Where do we fit the social and behavioral aspects of medical practice into these different schemes? Should they be presented in separate courses, or should we use social and behavioral scientists as consultants in our tested and tried educational method—the case method of study? It is perfectly conceivable that a physician could use any of the social scientists as a consultant on an equal basis. The neurosurgeon, for instance, might obtain a better understanding of the disease process in a given patient if he knew more about the setting in which it occurs—the family and the home.

Whatever pedagogical methods are employed, they must permit the continuing evolution of our educational processes. They must take into account the changing roles of the physician himself, and of the helpers he accumulates. They must give the student the ability to work with others. We are faced with changing social conditions, and we must constantly keep in mind the effect of voluntary group medical insurance and of the government's increasing interest in the field of medical care.

Certain values are inherent in any of these novel approaches. Among them are revitalization of the faculty, restimulation of teaching, and re-examination of the goals of education. Individual schools may attain a more unified approach and a more general recognition of the goals within their particular schools. It must be recognized that, just as there will always be schools that are deviants, so there will always be faculty members who are deviants.

Perhaps one of the facets of medical education that is most neglected is the need for continuing education of the faculty members so that their knowledge may be integrated in all fields—not only others within the medical school, but particularly those disciplines or bodies of knowledge that are growing up outside the medical school. Because these extramedical sciences are developing their own technical jargon, which we comprehend as poorly as they comprehend ours, we tend to learn less and less about them.

In any event, regardless of the method by which the student is educated, we must start with the community, the body politic. From this pool of people we must select students and teachers, and from it we must also obtain financial support, whether in the form of taxes, endowments, or income that is the equivalent of endowment. We must, in any successful educational process, have good students who want to learn and faculty members who are superior in their particular fields. We must recognize, and must prepare our students to recognize, that we must go full cycle—start in the community, and end up in the community.

The physician's continuing education, whether he is a scientist practicing in a medical school or a general practitioner practicing in some rural area, is largely a process within himself, one he pursues on his own. He may have some help from his professional colleagues in the county medical society or in a research group, but most of his true learning—the part that sticks with him—is what he does for himself, by himself. It is a good sign that the medical schools are increasingly accepting a responsibility for the physician's continuing education, either through postgraduate courses or by simply providing the environment in which the graduate physician can come and work.

As a final word, let me say that only time and experience will tell which approach to medical education will prove to be the best. Social changes that are taking place will inevitably be a determining factor, and eventually the biological principle of the survival of the fittest may provide us with a partial answer. There will never be a complete answer to the problem.

CHAPTER 11

The Student in the British Pattern of Medical Education

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MEDICAL EDUCATION, as I see it, is the vital link between medicine and medical practice. It is responsible for passing the advances of medicine on to professional practice, but is itself subject to changes in both. The advances in medicine have been pretty much the same in both Britain and the United States, but the nature, pattern, and conditions of practice have been very different in both countries for a long time and there have been consequent differences in the educational field.

THE BACKGROUND OF BRITISH MEDICAL EDUCATION

Historical prologue

My starting point in outlining the differences in setting between our two countries is the ninth of February, 1765, when two men—and so far as I know only two—were admitted licentiates of the Royal College of Physicians at London.[1] The first was Thomas Dickson. He died in 1784 and was buried in the Church of St. Mary in Whitechapel, and there until it was demolished by bombing you could read on a tablet that he was:

> Educated at Edinburgh and Leyden.
> 25 years physician to The London Hospital.
> A man of singular probity, loyalty, and humanity;
> Kind to his relations, beloved by all who knew him;
> Learned and skillful in his profession,
> Unfe'ed by the poor.
> He lived to do good
> And died a Christian believer.

Now I don't suggest that this describes the typical British physician. It may be, however, that it describes what patients then and now would like him to be, but that isn't why I mention Dickson. The point is that in the year before he died there was officially opened in his hospital the first building of the London Medical College Hospital, the first of the hospital medical schools in Britain.

His companion on that day of admission to the College of Physicians was a Dr. John Morgan, who in 1765 founded the first medical school in the United

[1] *Munk's Roll* (Royal College of Physicians), vol. 2, p. 261.

States—at the University of Pennsylvania. It wasn't until 100 years later, if my figures are right, that this particular school moved its medical college into the precincts of the Philadelphia General Hospital.

The point in my taking you back to the late eighteenth century has been to stress that from then on our medical education in Britain has grown under the aegis of the hospital, while yours in America has been more obviously under the aegis of the university. In Britain, education has tended more definitely to be affected by the pattern of medical practice, and particularly of hospital medical practice.

Now at the time of Dickson and Morgan the condition of medicine was markedly similar on both sides of the Atlantic. There were three orders of the profession—the physician, the surgeon, and the apothecary. The two last had the technical and apprenticeship training that was appropriate to their functions. The physician, however, underwent a general education at a university and later acquired by apprenticeship a professional training.

Dr. Dickson of The London Hospital was a well-known Greek scholar and in my country Dr. Morgan is accepted as having been a man of the widest understanding and intelligence, not because he was one of the first to receive the A.B. degree of the University of Pennsylvania, but because of his four "Dissertations on the Reciprocal Advantages of a Perpetual Union Between Great Britain and her Colonies."

Professionally both men were clearly of the highest order—in 1763 Morgan anticipated John Hunter by maintaining that pus was a secretion from the vessels, and later in the same year Dickson published his "Treatise on Bloodletting." These two men formed what I think should be called the Morgan-Dickson Line in medical education. At their time medicine knew little of science. It was concerned with the patient and not with his disease. From their time medicine advanced gradually by the application of science and became predominantly concerned with the disease rather than the patient.

A century after them, by 1900, medicine had become (to quote from Newman)[3] a "system of diagnosis, based mainly on the elucidation of physical signs," and a "system of pathology based on purely physical science," and "a system of treatment which attempted to counteract the physical causes of disease."

To practise this essentially utilitarian medicine in Britain, a new order in the profession had emerged—the general practitioner. To prepare doctors for this pattern of practise, a new form of education had been established. Its one aim, officially stated by Act of Parliament and questioned by none, was to train a man to be on graduation a "safe general practitioner," and this has remained the required aim of British undergraduate education until this year of grace. The field of training was established as the hospital schools, and the consultants at the hospitals were established as the clinical and indeed the preclinical teachers.

The structure of training was a block period of basic science, somewhat vocationally oriented at the universities, followed by a period of clinical study so arranged as to include all knowledge and all techniques considered useful. Dignified by the title of Curriculum, this arrangement was based not on any con-

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[3] Newman, Charles. *The Evolution of Medical Education in the 19th Century* (London: Oxford University Press, 1957).

siderations of the processes of learning, but on the principle of apprenticeship and mainly on the organisation of the teaching hospital. This system was completed, controlled, and confined by examinations—one series to guard the entrance, another to guard the exit, and one to ensure that the basic science and clinical apprenticeship were kept strictly apart.

This was the position established in Britain just over 50 years ago, and I think there is little doubt that it was satisfactory then and that it remained so for the first quarter of this century. The form of education was appropriate to the pattern of practice, and that was suitable to the medicine of the day. It is reasonable to criticise the system, with its increasing emphasis on physical phenomena and its almost contemptuous disregard for a disease with no apparent organic basis. It cannot be denied, however, that the system produced men who, by the time of graduation, could enter general practice and could rapidly acquire both competence and confidence, whilst many achieved an eminence unsurpassed elsewhere.

The present situation

Until this year no radical change had been made for over half a century in the official aim of medical education or in its structure or in its examination system. Yet almost everything else in medicine has changed, and I wish to draw attention to four particular aspects of this change: (1) the effect of the increase in medical knowledge on the British examination system, (2) specialisation and its effect on the pattern of British medical practice, (3) the National Health Service and its effect on the staff and the patients of our teaching hospitals, and (4) changes in general education in Britain and their effect on the selection and background of medical students. There is no need for me to dwell on the change in medicine and the increase in knowledge, but I want to stress that this upsurge of medical knowledge has led to an impasse in our medical education, for in Britain the examination system stands four-square in the path of progress. A statutory obligation to insure that the student can "safely practise" has made the final examination an increasingly comprehensive test, a cumulative marathon in factual knowledge.

For nearly half the medical students in Britain this is an external examination; that is, they are assessed in a strange hospital by strangers who have taken no part in their training and who have no knowledge of their work records. This system of external final examinations, which arose from a Victorian belief that it was the fairest method to the candidate, has continued despite the strongest condemnation from well-informed critics for 20 years. It now produces failure rates of up to 50 per cent.

Turning to the field of medical practice, these same advances in medicine have of course resulted in specialisation, and the nature of this differs markedly in the United States and Britain. In Britain the specialist is a hospital doctor. Irrespective of the higher qualifications he may have obtained, he cannot achieve the position of specialist, for which we use the term "consultant," without being appointed to a hospital—and in Britain an appointment to the staff of a hospital has always been appointment to sole personal and permanent charge of a number of beds.

We have no rotation system for visiting men. In my hospital, for example, the staff includes only nine internists. Beds belong to consultants, and no consultant and no professor has any measure of control over any other beds but his own. Furthermore, no consultant in Britain will ever see a patient in his office, in a hospital, or in a patient's home unless he has been requested to do so by the patient's general practitioner.

Specialisation has meant for us a division of the profession into hospital doctors and general practitioners. In the hospital it has meant an increase in the number of consultants and subdivision of the beds of the hospital into increasingly small units, with steady decrease in the number of so-called general beds. This process has been most marked in the teaching hospitals, because they have naturally been in the forefront of specialisation. With rare exceptions, a clinician in Britain teaches only on patients who are under his personal care.

Now it follows from all of this that specialisation has had three effects on medical education. First, it has increased the comprehensiveness of the curriculum by the inclusion of each new specialty, however technical, and it has by the same token increased the number of teachers in each medical school by the number of new specialists appointed to its hospital. Second, it has fragmented the clinical experiences of the students, again to a varying extent in different schools. Third, it has resulted in training being carried on in a clinical atmosphere increasingly divorced from that of general practice.

It is clearly impossible any longer to train a man to be a "safe general practitioner" by the time of graduation. The maintenance of this aim and of the comprehensive curriculum and examination that were invented to achieve it have both impoverished the technical training and thwarted the scientific education of the British student. It is not specialisation that is to blame but our failure to adapt education to it—we have failed to adapt because we have allowed hospital organisations to dominate medical education. Nevertheless this same hospital organisation may in one respect have an effect on our medical education which, as I will suggest later, can enable us to keep going forward, however slowly, on sound lines of training.

The state of affairs I have described was well advanced before the National Health Service came into being. Theoretically this could have led to rapid improvements, for it gave teaching hospitals autonomy, and their separate boards of governors were charged with the duty of providing those clinical facilities deemed necessary by their respective medical schools. In some parts of the country the clinical facilities for undergraduates have been improved by the amalgamation of several hospitals into teaching groups.

Elsewhere, and particularly in London, the situation has perhaps been worsened, partly due to the difficulty of forming suitable hospital groups, partly because financial expediency has left the teaching hospitals to bear the brunt of the increased demand for specialised services, and not least because there has been no coherent policy for adapting medical education to the sudden changes in hospital organisation and medical practice.

In two other ways the Health Service has affected medical education. Although full-time professors of clinical subjects were first appointed to English medical schools in the twenties, the process has been slow, and some schools, for example, still have no professor of medicine or surgery. All other clinical teachers hold

part-time appointments and, until the advent of the Health Service, derived their incomes exclusively through private practice from fees of patients referred by general practitioners.

Because students are the general practitioners of the future, success in teaching was an important adjunct to success in practice. The great reduction (though not cessation) of private practice since 1948 has weakened this valuable personal link between teacher and student. This same reduction in private practice has made it essential for the young consultant to obtain appointments to several hospitals, and in consequence he has become more of a visiting consultant at the teaching hospital than his predecessors ever were, and he is therefore less able to take a close interest in students as individuals.

The selection of students

Turning now from the teachers to the students, in the last decade the field from which our students have been drawn has widened enormously. It has been possible for anyone and everyone to put themselves forward as a candidate for entrance into the medical professions. This remarkable widening of the field could have altered the incidence of one motive for choosing medicine relative to another. At all events it made selection necessary and no doubt the competition has reduced the number of those who drift into medicine. It has not, of course, eliminated parental pressure as a driving force, but it is possible that for several reasons there is less tendency for doctors to influence their sons into medicine than there used to be, and a greater tendency than previously for parents in other walks of life to do so.

Thinking only of applicants that I have seen in the last 10 years, and not of students, it is my impression that altruism is the greatest motive force in the largest number. It does not follow that the majority of those selected come from this group. Indeed, the character of the student's motivation may not emerge as a crucial factor in the selection interview.

There was virtually no previous experience of selection in British medical schools when it became urgently necessary 10 years ago. Before the war the vast majority of students came from one section of the population: they were from the families of doctors, other professional people, and middle-class business men. They had very similar home backgrounds and very similar schooling. The majority of selectors, of course, came from exactly the same source, and it is possible that selection committees are still unconsciously biased in favor of applicants who apparently come from this group. This may not arise so much from preference as from the fact that most selectors can judge individuals of this type more easily than they can those with a background in which they themselves have had no personal experience.

At the same time, even if selection operates perhaps slightly in their favor, it is certain that fewer children whose parents are in the professions choose medicine now than before the war. There are many reasons for this. For one thing, there are fresh opportunities for scientific careers, less difficult in their academic approaches than medicine and more likely to appeal to the late developer. Also, the medical profession itself has expressed disquiet about the nature and condi-

tions of its work, especially in general practice—confusing, I personally think, the results of the National Health Service with those of specialisation.

Still another factor is the double effect of finance. All professional people are not only less well off now than 20 years ago, but poorer in relation to other groups of the population. They are still, however, in the higher income group, and therefore their children will not receive the full amount of any scholarships or grants they may win.

Medical school fees are low because there are very heavy subsidies, but a doctor cannot afford to keep a son throughout the long medical training without real personal sacrifice. About 85 per cent of present students throughout all of our medical schools are in receipt of state scholarships or grants varying from full maintenance to payment of fees. These are awarded and maintained on the results of examinations.

In 1935, in The London Hospital Medical College, 25 per cent of the students were the sons of doctors, whereas in recent years only 20 per cent of a larger total are the sons and daughters of doctors. Considering all universities in 1955, the percentage was considerably lower than 20 per cent, which may mean that The London Hospital receives more applications from doctors' children than do other schools, or that it selects more of them.

A great widening of the field has therefore been accompanied by a diminution in the number of applicants coming from that section of the community that formerly supplied the majority. To no university, however, can selection alone secure admission, for in Britain this finally depends upon passing the entrance examinations which are usually taken after selection. In theory the subjects covered could be any, but in practice they are nearly always chemistry, physics, and biology. Although some or all of these subjects may be studied in the first year at a university, most students learn them at school beforehand and the majority complete them then, obtaining direct entry to the university to begin preclinical work.

The standard of these first examinations has risen greatly since the war, and preparation for them requires a two-year course. Thus it has come about that the future doctor must choose his career at the age of 16, and the selection committee must choose its students from boys and girls of 17. After concentrating on three scientific subjects for two years, the student enters the university at 18.

The nature and standard of the examinations sets a premium on the rapid acquisition of factual data, and for this reason many of the best boarding schools in the country will not attempt the two-year course of preparation. Others expand it to include nonscientific subjects, in the hope of giving a more balanced education, but with the result that their pupils may have difficulty in passing the examinations. It is possible therefore that the attempt of these schools to maintain a liberal education actually reduces the number of their students now entering medicine.

It was these so-called Public Schools, their pupils drawn from families in the higher income group, which before the war supplied the majority of medical students. The academic education now provided at some of them almost certainly is the best in the country, but at the others it may be less good than in many of the state schools. Because they are boarding schools, however, it is commonly thought, and it is probably true, that they exert a stronger influence on character

formation than do day schools, an influence that may be good or bad. At best, in the words of a headmaster,[3] "it leads first to a sense of service, which includes the acceptance of discipline without resentment, and a general readiness to put community before self; secondly a sense of responsibility which combines an imaginative concern for those in one's care with the courage to take or to support decisions which, though right, may be unpopular."

It must generally be accepted that the above attributes of mind are required for medicine. Indeed, they comprise what Hutton has described as the characteristics of the traditional professions:[4] "the combination of personal independence with public service, based on a fully accepted corporate discipline." It is clear that for several reasons there has been a reduction in the number of students entering medicine who have already acquired a sense of discipline and responsibility by virtue of their early schooling and family background; there has also been a concomitant increase in the number of students who have not acquired these attributes. Furthermore it is impossible for any new student to have a clear concept of the nature of a doctor's life and work.

None of this means that the general standard of the students has necessarily fallen, for a sense of discipline and of responsibility can be acquired in the university if the university sets out to inculcate them, and the medical school should be able to impart a clear picture of a doctor's duties. In the past our medical schools have operated on the basis that the majority of the students required no assistance in these respects, but now the admission of many who do require them has produced problems for both the schools and the students.

These problems are further complicated by the fact that so much of the expense of education is borne by the state. It is quite obvious that if the medical profession is to be able to choose its recruits from the complete field of all those who wish to join, then the country must pay for many of those that are chosen. The student, however, is less easily aware of a sense of obligation to the community that he would be of financial dependence on his family, and therefore the former is a less potent stimulus to his sense of responsibility.

After 10 years of experience of drawing from an enormously widened field, we can say that there is much greater variety in our medical students than ever before, that in many respects all of them are different from those of prewar days —but we cannot say whether in general they are better or worse. I think that until two or three years ago, despite having access to previously untapped sources, the standard remained about the same as before the war, but since then all schools, it seems to me, have begun to comment on a drop in quality.

The total number of really first-class applicants, however, seems to have remained the same throughout. This again is purely an impression, but there seems to have been no variation at all in the number of those able students who, irrespective of family or school, arrive at the university with an inborn sense of purpose and achieve their aim irrespective of the opportunities or obstacles they find there.

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[3] Dancy, J. C. *The Times* 26, 9, 1957.

[4] Hutton, G. *Times Literary Supplement* 24, 5, 1957, p. 321.

Such then is the nature of the raw material that is available today and such are the factors affecting it. This was an essential prologue to the story of the ecology of the British medical student, which can be best told by a chronological description of his progress from entry to registration as a medical practitioner. It falls clearly into four time periods, the last of which is the year of internship.

I have been tempted to talk of four *phases* but thought I might confuse you by so doing. You might think that our phases were deliberately created like those of Western Reserve! They were not; to a large extent they just grew. They are periods of time. Each does have an educational objective, but it is not always specific or fully recognized by students or teachers, and it is often accompanied and confused by other objectives.

In some ways our medical education resembles a piano concerto. The movements are fast, then slow, then fast again. We begin with one melody, diverge into a variety of others, come back to the first, and then end with one that previously was secondary. The piano is played by the examination system, and the orchestra, which comes in quite rarely, represents all the other influences affecting the medical student. Examinations so dominate the structure and function of the education that before describing the stages into which they divide it, and the degree to which each is influenced by them, I must comment on the peculiar nature of our British attitude toward examinations.

Impact of the examination system

Our students face a critical examination at the ages of 11, 16, 18, 20, and 23, and it is this infrequency that makes so much depend upon these examinations, which are in no way similar to the very brief and frequent quizzes that were at one time so common a feature of American medical education.

Malleson, in a recent study of the psychological reactions of students to the British examinations,[5] describes them as "the quintessence of all judgment situations." I think it is true the candidate does come to feel that not only is his knowledge going to be tested, but that judgment of his life and character will be made. It is a fact that the majority of the students wear their best suits, brush their hair, shine their shoes, and put on a tight collar and tie on the day of the written paper, although they won't see any of the examiners.

This attitude has prevailed over a long period and we have all helped to contribute to it. Teachers emphasize the importance of the examination in many ways: "You will have to work harder than this if you are going to pass." Another one is: "Do this to your patients but say this in the examination." A more subtle influence emanates from the fact that many teachers look back upon their own examination as times of stress, which in retrospect seem not unpleasant. Indeed these tests, especially finals, can come to be regarded almost with affection as a kind of a traditional initiation rite. Unfortunately, it is not sufficiently realised that a vast increase in factual knowledge has made preparation for them so much more difficult, while the system of financial awards has made them much more serious.

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[5] Malleson, N. *Brit. Med. J.*, 1957, p. 551.

Only very recently, since the year of internship has become compulsory, has there been any weakening of the two convictions that examinations exist to safeguard the public, and that this can be done in no other way. Equally recently has come the suspicion that in their traditional form examinations are an inaccurate method of assessment. The system has existed for so long and has had such a powerful influence on education that many people quite honestly believe that unless a student is confronted by an examination carrying an appreciable failure rate (not just 10 per cent like those awful Americans), he will have no incentive to work at all. To them medical education without such examinations is as useless as a cart without a horse.

With this outlook prevailing in professional circles, it is not surprising that many parents honestly believe the purpose of their children's education is to pass examinations. This is not the least, therefore, of the influences contributing to examination strain. Another and sometimes more powerful influence is that of the grant-giving authorities. Grants are awarded on the results of examinations and the grants are maintained on them.

Almost alone among the subjects of university education, medicine has no honours degree. The student of history comes to the end of his period of study, takes his finals, and is awarded a class or is occasionally failed. The medical student completes his course, takes his finals, which are largely vocational tests, and either passes or fails. At the Universities of Oxford, Cambridge, and London, he is examined by strangers who know nothing of his record. The student, however, does know the examiners' records and comes before them knowing that at the last examination they failed up to half of his predecessors.

When a student fails, the authority that up until now has paid for him cannot understand why it should pay for a further six months training, even if his medical school states that he has worked soundly for five years. One important county council, supporting many students, has been misled by this natural confusion and has taken the singularly unfortunate action of notifying the students in their last year that failure will be followed by automatic and final cessation of all grants.

In contrast to this attitude is that of the examiners themselves. They have without doubt (and I am one of them) done their level best to pass as many candidates as possible, especially in finals and particularly since establishment of the compulsory year of internship. Unfortunately no one takes the views of the examiners very seriously. Students are influenced by what they believe examinations to be, not by what they actually are.

The preclinical period

Such then is the nature of the one factor that dominates all others in the ecology of the British medical student. Now for the first of the four stages—that of preclinical studies. There are two distinct patterns, that of the Universities of Oxford and Cambridge and that of all the others. At the two older universities the student is able to study anatomy, physiology, pathology, and at least one other subject for a total of not less than three years. He is offered facilities for a full university life based on the collegiate system of residence. He is given oppor-

tunities unsurpassed anywhere. At Oxford, with its tutorial system, he has every encouragement to learn how to learn for himself. At Cambridge, with its larger number of medical students, it is perhaps easier for the individual to follow a course of instruction and fail to begin to use his own mind.

At both places there is, as there has always been, great variation in the degree to which undergraduates avail themselves of the opportunities offered to them. Over the past five years there has been much comment to the effect that the number making valuable use of them is too few. Attention has been drawn to the fact that students of both schools devote the terms entirely to classes, laboratory work, and study, and the vacations to remunerative employment. Much has been heard of the results of pre-examination strain at Oxford. A recent survey at Cambridge suggests that a high proportion of undergraduates are disappointed in various ways with either the university or themselves while there.

In my opinion it is very unwise to interpret any of this evidence as indicating a true deterioration in the education received as compared with before the war, for there was less serious research carried out on such matters then than there is now, not last because university health services did not exist.

On the other hand, competition for entry to Oxford and Cambridge has been intense during the past decade. It is possible that some students obtain admission as a result of exceptional effort rather than exceptional ability, and that they are unable to maintain this effort at the university because of exhaustion, or because they cannot compensate for the lack of minute direction they previously received at school. In general, however, it seems probable to me that the majority of those who begin their medical studies at these two universities are given and avail themselves of as good an education in the basic and medical sciences as could be obtained anywhere in any country.

The alternative pattern for this preclinical stage obtains at all other universities in Britain. Its duration is five terms, and pathology is not included among the subjects studied. Everywhere the students begin with enthusiasm, eager to learn medicine and interested in both anatomy and physiology. The desire to learn remains, I think, but as a driving force it is soon replaced by fear of the second M.B. examination, at which only two attempts are allowed. Motivated by this fear, students move along a track that is clearly demarcated in all schools by a timetable. Initially there is an interest in extracurricular activities but this is soon suppressed.

Clinical demonstrations occur throughout the course, but they are strictly relevant to the subject in hand and are not time-consuming. Attempts to interest students in wider issues by lectures or discussion groups are, I think, largely unsuccessful unless the subject matter has a clear relationship to the examination and can lead to considerable resentment. The only forces that can challenge that exerted by second M.B. are those of illness or love.

The month before this examination is the first period in which cases of pre-examination strain occur in the medical school. They appear every year, but it has been my experience that they are less numerous and less severe than those preceding finals. Perhaps this is because weekly *viva voce* tests keep the students in good trim for examinations, which in the case of the second M.B. are everywhere internal. I worry less about casualties in this examination than I do about the reactions that follow, for when it is over the students have little further inter-

est in anatomy or physiology and have no intention of doing any serious studying the next term. A few, however, are given the opportunity to spend the ensuing year working for a B.Sc. degree in one of the basic medical sciences.

The clinical period

I pass now abruptly to the second of the four stages. This is the stage of clinical study, not the whole of it but approximately two of the three years—the exact duration varies with the individual student and the medical school. Here again are two distinct patterns. One is to be found in all the provincial medical schools and the other in the 12 separate medical schools of the University of London. As these accommodate the majority of Cambridge students for their clinical studies, they are responsible for at least half the medical students in the country.

The provincial pattern

In the provincial, and particularly in some of the Scottish universities, there is still a heavy weight of didactic teaching, and almost throughout the three-year course there runs a steady stream of organised lectures and demonstrations. Sandwiched between these and the practical classes in morbid anatomy, bacteriology, and pharmacology, there is attendance in the wards. In these schools the student is in no doubt as to what is expected of him. He can go forward along the lines indicated by the timetable, accepting and storing the knowledge put before him. He may lack incentive to think for himself, but he can visualize what he has to learn of the theory of medicine and he is helped in that effort.

The student is not greatly tempted to avail himself of extracurricular activities, partly because facilities for them are not offered in abundance. He does work within a university but he is very inclined to remain a mere student of medicine. Considerable efforts have been made in recent years to provide for interfaculty contacts, including the building of hostels, but it still seems that the age of the clinical student, and the preoccupation of the preclinical, result in their remaining very much isolated from the rest of the university.

From observations in the Manchester University Health Service, Logan has described a type of student he claims is all too common there:[6]

> The brightboy, often the only child of an artisan, after school comes up to Redbrick on a grant to follow his favourite subject, perhaps because the schoolteacher was his favourite. Because there is no room for him in hall, he sleeps and studies in lodgings alone or with one other lonely boy. Every afternoon is filled with lectures or with practical work, except Saturday when he watches the local football team and Sunday when he may go for a walk before resuming his studies in the evening. After three years he graduates—and gets a job. Mum and Dad are satisfied.

This description, not specifically of a medical student, may well be typical of some. Nevertheless, I think the long exposure to clinical work brings a wider outlook and increasing maturity to most of them. Regular holidays provide opportunities to see life outside medicine. Periods of residence in hospitals as part of surgical or obstetrical experience make a marked impression, and I suspect that

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[6] Logan, R. F. L. "Medical Care of Students," Lancet 2, 1954, pp. 409–12.

these periods contain the most powerful forces at work on the students in this particular stage. They provide opportunities for close contacts with doctors, and the students develop a sense of responsibility toward patients. These periods also provide him with redress for what is otherwise a rather cramped clinical experience. It is possible that the standard of education in these provincial schools is in direct proportion to the duration of residence required in hospital, for this stimulates intellectual curiosity as well as improving vocational ability.

At this second stage of education certain influences are at work on the students in the provincial universities that do not affect those in London, or affect them in a different way. Primarily because the other cities are smaller, the clinical teachers with a full or part-time appointments at the teaching hospital are able to form a more cohesive teaching team than is possible in London. Among other advantages derived from this is the greater ease with which the attendance at interdepartmental conferences can be made properly representative.

Furthermore, the influence of the university department can more easily be felt in the medical school. This is particularly noticeable in the case of preventive medicine. The experiment of Manchester's health center and Edinburgh's continued use of the old dispensaries are examples of active work in teaching social medicine. In almost all the provincial schools some departmental project is in operation.

The London pattern

This is in marked contrast to London, where the tradition still holds that the individual clinician is responsible, at the bedside or in the clinic, for teaching comprehensive medicine and the social aspects of disease. As a result of the various changes, notably specialisation, the present clinical teacher is perhaps less well provided than in the past with all the requirements for doing this, but nevertheless he still does have facilities superior to those available elsewhere in England or in most other countries.

This contrast between the provincial and London schools anticipates discussion of the London pattern of the second stage of our medical training, which has always differed from that in the provinces, principally by being much more firmly based on the clinical apprenticeship. In the past students acquired wide and deep experience in the wards, learning from clinicians whom they also served; as Dr. Flexner pointed out,[7] they were very much a part of the "functioning machine." The teachers were comparatively few and their contacts with students in the hospital were many. Lectures and other forms of didactic teaching were much less emphasised than in other schools, and pathology was usually taught in an isolated block period of time so as to leave freedom for working in the wards.

Freedom was indeed the essence of this pattern of education. The majority of students on reaching the medical school already had a clear concept of the work of the doctor, and a sense of discipline, and sense of responsibility. They were expected to, and left to, look after themselves. They were expected to fulfill duties to patients, and a mechanism of reports and a dean existed to insure that they did so. They were expected by their parents to take their final examinations some

[7] Flexner, A. *Medical Education* (New York, 1925), p. 58.

time, and if the external examiners passed them, everyone expected that they had carried out a satisfactory training.

The system combined a vocational training with the individual freedom essential to a university education. It still combines these two. Today the vocational training is, however, impaired by the results of specialisation.

I would stress two of these results: (1) the reduced contact the student has with an increased number of teachers and (2) the reduction in his responsibility to patients. His vocational apprenticeship has clearly suffered in consequence of these, but it probably still remains one of the longest and most exacting anywhere. Individual freedom has been affected by the combination of specialisation and a comprehensive curriculum—and I am using the word "comprehensive" in the sense in which it is used in British medical education, implying the inclusion in the undergraduate curriculum of everything considered useful for practice. The number of required clinical appointments has considerably increased, though the duration of any one of them is likely to be short. On the other hand there has been little or no increase in the amount of formal didactic teaching, and in many London schools there has been a considerable reduction; consequently freedom still remains because there is no rigid timetable of lectures and laboratory classes.

The students, however, have changed greatly. They have had a narrower education, and in the stage of preclinical studies have had little chance to learn how to work on their own at a university. They have emerged from being under pressure during that stage, and they know that they will be under pressure in the next stage, so this is the only possible time in which to relax—and medical students in London in their first two clinical years are very relaxed. Furthermore they are to a great extent observers and are no longer a part of the "functioning machine." They are no longer the lowest form of animal life in the hospital.

Almost all of them begin this stage with great enthusiasm. It is a happy period, with a pleasant sense of relaxation and all the stimulus of the living patient thrown in for good measure. The desire to get themselves properly prepared for the future practice of medicine (distant and vague though their concept is) really does activate most of our students. For many, however, this is equaled by a powerful thirst that can be satisfied only by at last drinking long and deep at the fountain of life. Their attitude of mind at this stage is this: "Let us be taught a great deal of medicine—but not just yet."

The student can see that knowledge is put before him and that he can acquire experience, but the system doesn't require that he absorb knowledge when it is presented or that he shall by his own efforts digest it and integrate it. He is not accustomed to mental effort unless it is stimulated or demanded. That small group of first-class students is, of course, undeterred. They have a purpose and a method, but it is difficult for one of them to find a new stimulus by studying a special aspect of his choice, for the curriculum seldom has room for electives.

I think very few students are spurred on by financial need; the system of financial grants has largely removed this stimulus. Some students, it is true, are impelled by awareness of home sacrifices on their behalf, but even where such incentives are active they do not indicate to the student how he can work best.

The rigid timetable of lectures, which in the provincial schools runs like a railway line through the curriculum, is absent and it is very easy for the London medical student to go off the rails. Only the teacher can assist him to learn for

himself and can guide him in such a way as to insure that his personal clinical experience is both wide and deep. No teacher can do this without taking a close interest in the student. If this interest is shown, it becomes itself inevitably another incentive to work, which is all the more powerful and sustained because the work is more effective.

Unfortunately, present conditions for consultants in the National Health Service make it impossible for many of them, in their capacity of clinical teachers, to take this kind of close interest in their students, and for this reason in a few schools a tutorial system is being started. One has been in operation at The London Hospital for 10 years, and I am fully convinced that only by means such as this can present students acquire at medical school the outlook many of their predecessors acquired before arrival. I am equally convinced that only in this way can students attain the full benefits of the London pattern of clinical studies and take advantage of its length.

At present the tutorial systems are few and operate under difficulties, particularly the influence of examinations demanding a different type of learning. In the first two clinical years, without any examinations at all, many students drift. Teaching tends to be dogmatic—the delightful concept of the divine right of chiefs still lingers. There are no regular holidays. Teachers teach and students try to learn throughout the year.

Time courses gently by and what is not done today can safely be left until tomorrow, or rather what has not been observed today may probably be seen tomorrow. Students might fairly describe their predicament by slightly altering the words of W. H. Davies, "What is this life if, without a care, we have nothing to do but stand and stare?" For the students, midwifery comes as a great relief, a chance to work and to feel for once what it might be like to be a doctor. Only in these two or three months can they experience, in the words of the same poet, "The sweet content that turns the labourer's sweat to tears of joy."

The other months of clinical study are long, but they are so long that no one can help but acquire experience. Yet each day is quite short. Traffic congestion, and our desire to leave patients unmolested for some periods of the day, combine to fix short working hours in the wards. In my opinion, during these first two clinical years not many of our students at The London Hospital keep themselves fully occupied studying medicine, either effectually or ineffectually. If to them we add those who have so little energy that they merely drift along, they together comprise less than one-third of the total.

The remainder must find some outlet for their unexpended energies, and they do so either outside the medical school or in it. Which path they choose depends on their own nature and background; on whether they live at home as do 50 per cent, in our hostels as do 20 per cent, or in lodgings as do 30 per cent; and to some extent on the character of the group to which they belong. There is a twice-yearly entry into the clinical schools in London, and the introductory course comprises the main group to which the student belongs. Later in the curriculum this is subdivided into smaller groups, usually of about eight people, and each quickly acquires its own character.

In those groups the student passes through the successive appointments of the crowded curriculum, and the character of his group may be responsible for drawing him further into the school community, or for keeping him further from it.

At the present time I estimate that rather more than one-third of the total body of our students are individualists who spend much of their time in private pursuits away from the medical school. The variety of these private pursuits always amazes me. Hobbies at home are to be expected and are not very often bizarre. Church activities, boys clubs, and boy scouts are usual and common. Music claims many, and flying a few. One has recently been called to the bar.

A riotous social life claims very few clinical students in London. More frequently they are engaged in activities that combine pleasure with business, either by managing a small private concern, such as a travel agency, or by working at a part-time job—and these range from working in the photo-finish at a dog track to conducting Americans around historic buildings. If it is true that the finest university is life itself, then this group of London students, who as guides are quite likely to confuse the Senate House with the British Museum, have a university education.

The remaining one-third of the student body spend their energies and their time in the extracurricular activities of the medical school itself. The total size of the school today, including dental students, is just over 540, of which 94 are women. Out of this number, 180 are at any one time engaged in the first or second year of clinical work. Of those, I estimate that 60 spend most of their energies in the school's clubs and societies. They are joined, of course, by a few from an earlier year and a few from a later year, so it is about 100 at a time who are making full use of the facilities, although many may enjoy a weekly game of their favourite sports.

Full provision is made at the school for almost any kind of activity, and the union of clubs, financed by subscriptions from the students themselves and by subsidy from the medical college, consists of 27 clubs and societies. They range from sailing through football to skiing and mountaineering. They include arts and music, but not politics. Spreading beyond these are a variety of regular functions including dinners, dances, and variety shows. There is also a medical society and a journal.

These activities are extensive, but they are traditional and no one begrudges them at all. By contrast, more mundane amenities such as common rooms, reading rooms, and the like are scanty, but these don't come under the heading of "traditional." It may seem strange to you in America that such an elaborate organisation of extracurricular activities should be provided in each of the 12 schools in London. You must remember that our students begin their medical education at about the age of 18, and if they are to have the aids to maturation that are to be conferred by community activities, they must have them at the medical school or not at all. Furthermore, I personally have no doubt that it is important even for those who have had three years at Oxford or Cambridge to be able to combine the study of clinical medicine with a reasonable amount of physical and mental relaxation and entertainment.

All of this extracurricular organisation and entertainment has another particular value in the field of staff-student relationships. It provides innumerable points of contact, and although these are not in the environment of medicine itself, nevertheless they allow individuals to get to know one another. Medicine is a peculiarly personal subject, and most students seem to find it easier to study it if they know their teachers as human beings. As a teacher I can say without hesi-

tation that the time I spent in the capacity of president of the boat club; vice president of clubs devoted to dramatics, playreading, football, swimming, squash, and athletics, vice commodore of the sailing club; and adviser to and censor of the Christmas show, has been enormously profitable in terms of knowing the students—and is an education to me. It is particularly interesting to find that out of school the British student can be as uninhibited in his relations with the staff as he is inhibited in the wards. In general I would like more use made of these opportunities by both students and teachers.

Recently there have emerged two new and unconnected factors in university life in London—one is women medical students and the other is marriage. Between the World Wars only two schools took women students, but since 1947 all have taken women up to about 15 per cent of the student body. Opinions vary very much as to whether or not this is a waste of public money, for the marriage rate is high. However, there is no doubt that they provide more intense competition, the general academic standard of the women being excellent. There is also no doubt that their presence in the previously masculine society of a medical school has been beneficial in ridding it of a certain unnecessary vulgarity in the approach to medicine, which was becoming traditional although by no means universal.

The second new factor, marriage, was unheard of and almost nonexistent among medical students before the last war. Now something approximating a third of the students are married before qualification or just after. There are many reasons. More students now come from families where early marriage is normal; a majority enjoy financial independence; and all are faced with an extra year of compulsory training and two years of military service before they can start in practice, or take the six- or seven-year climb to a staff appointment. I have never seen any evidence that marriage affects the student's work. I have seen considerable evidence that the work of a student can be harmful to his marriage—keeping medical students so long from responsibility delays the speed at which they mature.

This then is the situation during the early period of clinical study. Into these two years are packed the large majority of various factors concerning the ecology of the British medical student.

Preparation for finals

The third stage of medical student life is completely under the influence of the examination, as was the first. This third stage is that of preparation for the finals. The period of influence on the student may last as long as a year, but it varies with the school, with the individual, and with the reaction of the group to examinations. This group reaction is particularly important in London where the tests are external and the failure rate is high. In addition to this, the London student who has paid rather nominal attention to his work over the two previous years can be undermined by his own conscience as he struggles toward his meeting with the unknown examiners.

In the provincial schools the organised curriculum trails away as the final examination approaches. In London the organised curriculum of required ap-

pointments has eaten a long way into what was once a year completely free for reflection, integration of knowledge, and work in the outpatient department. This curriculum is not itself related to the examinations and thus frustrates many students who endeavour to escape from it. So there is small wonder that in London most students are swept by a tide of group hysteria into taking the examinations for the Conjoint Diploma piece by piece at three monthly intervals throughout the final year of study. It also seems probable that the state of mind of many of the students when they take their finals has been such as to render this assessment somewhat inaccurate.

The final year is of course the peak period for pre-examination strain. Malleson, as physician in charge of the Student Health Association of University College, London, estimates that 10 per cent of the students of that multifaculty college came to his department prior to their major tests with symptoms attributable to strain. I would put the true incidence very much higher than that. The students only go to the doctor when they think they are ill.

In my capacity as sub-dean I receive many teachers' reports of unsatisfactory performance during this period. Students themselves have come to me in my nonclinical capacity to ask for advice on such things as divorce. Many have come to be temporarily excused from the examination. One came once, I remember, to tell me that he was going home to shoot his wife. A few come not to me, nor to the doctor, nor to the examiner—they just turn up somewhere else many miles away.

The internship period

The fourth stage is internship. Sooner or later practically all of our students qualify. On that day they experience incredulity; on the next, profound relief; and on the third day a new feeling of apprehension and anxiety sets in. On or about the third day after qualifying, that most powerful force in the ecology of the doctor—responsibility for the individual patient—now strikes those who for five years have been only students. This feeling of anxiety mounts as the internship begins, but then easily and steadily falls away. Only in a few cases does it increase. In those it seems to produce or precipitate more serious psychological consequences than did the examinations. This is in my experience the peak period for frank psychosis, and I think the incidence of it has been definitely higher since the war than before it.

For the great majority, however, the internship is a remarkable satisfying, active, and happy experience. It usually consists of six months of medicine and six months of surgery, with the two periods commonly being spent in different hospitals. Each medical school fills all its own internships from among its own student body. Without exception, always and for several reasons, these posts are greatly sought after. Indeed, to the student, getting an appointment in his own hospital is second only to qualification in his objectives. Competition, of course, has enormously increased with the introduction of the compulsory year, and it is one of the most powerful forces affecting our students.

Very few schools have yet an adequate system for advising the individual on his postgraduate work, and very few schools have really adequate knowledge of his needs and potentials. In consequence, although the good student is unper-

turbed, the immature and more foolish feel the weight of competition more than is good for them, frequently imagining that the way to an appointment lies in attracting attention to themselves, primarily in the extracurricular field. Alternatively they hesitate to show an active interest in the wards lest their colleagues may think they are seeking to impress. In this, as in so many other attitudes, the group personality plays a large part.

All of this only indicates, however, the great value of the internship. You must remember that in Britain now the interne is not a registered practitioner; he is a student, albeit with a difference. Internship is the last stage of training and it is entirely under the university's control. During this stage that paramount driving force, fear of examinations, is gone; it is replaced by responsibility for the individual patient.

Furthermore, in the supervision of these students a personal interest is now taken in them as individuals. The British interne does not join a medical or a surgical service; he is appointed to one or two consultants, and he is responsible to them alone for the inpatients under their personal care.

This is, of course, clinical apprenticeship and every student must go through it. Looked at in one way, what has happened is that by requiring all students to serve for a year as internes, at State expense, we have considerably repaired the damage done by specialisation and the National Health Service. You may feel that we are merely redressing the balance in vocational training. We are indeed doing that, and the interne year is surely the proper and perhaps the only time in which vocational training should be paramount. But it is significant that in our system of education the interne responds more readily to stimulation of his critical faculty and is more easily animated by a spirit of inquiry than the student. Perhaps the earlier years of training only now begin to take effect.

We are, I think, redressing the balance (but not sufficiently) in favour of the two forces we wish to see uppermost among those affecting the medical student: (1) his responsibility to the individual patient and (2) his teacher's interest in him as an individual to be encouraged, guided, and taught by example. These are the forces I think we must make predominant throughout the whole education.

Interest in the individual is surely an essential requirement of any university education. Responsibility to the individual patient (who is under the personal care of the teacher) may at first sight smack of technical training. I don't want it for this purpose, but because it is the only way, and our traditional way, of keeping to a high standard in medicine. It constantly exhibits the principal object of all medicine—care of the patient—and it offers a yardstick by which all else is measured.

It seems to me that only if we base medical education on these two forces can we insure that its future course runs straight, without veering first off on one tangent and then on another. Only in this way can we absorb the application of science to medicine without producing technologists; only in this way can we inculcate the attitude of preventive and social medicine without it developing into a specialty practised later by only a few. But, in basing medical education on these forces, we must insure that we do not merely perpetuate vocational training. They must run as a theme throughout a continuous educational process which in the beginning is entirely educational and becomes mainly vocational only at the end.

CONCLUSION

I think we in Britain are in a peculiarly favourable position to improve medical education. Our pattern of medical care can be subjected to controlled experiments, and therefore our education can be made appropriate to a specific pattern of practice. Whatever change of emphasis is required in the education—and the emphasis must now surely be on the prevention of disease—can be woven into that theme which is composed of care of the individual patient and guidance of the individual student. Our first need is to free this theme from the overtones that have come to obscure it through our recent failure to adapt to changing circumstances. Our second need is to strengthen it while providing the new emphasis.

From all that I have stated, it is clear that we have to regain control of the force of examination. Then, to provide our new emphasis, we have to widen the basis of education beyond the hospital and include in the teaching team new members from outside. Meanwhile, to strengthen our main theme, we have first to provide the student with more responsibility to the patient and secondly we have to regain our ability to educate the student as an individual. This is particularly difficult because it requires that some clinicians, while continuing to practice medicine, make this form of education their special interest.

It is not enough to have a tutorial system which is a mere adjunct to the other educational processes. Tutors must have ability and training in their field and also be men of professional experience. The system providing encouragement and guidance must never be separate from the system of reproof, which is represented by authority and vested in the dean. Any dichotomy can only result in resentment of authority or frustration of encouragement. But if all good incentives are mobilized and coordinated into one discipline, then progressive assessment of the individual becomes possible, and he can be given such help as he is known to need.

How fast we shall move toward this concept is very hard to say, but it is perhaps not inappropriate to say here that some indication of our speed will be given by our future attitude to deans. In the past they have been primarily concerned with the administration of the curriculum and the execution of discipline. The speed of our progress may depend not least on their ability to function more as catalysts in forming educational policies than as executive directors. Above all, it will depend on whether the deans concern themselves more with the individual student than they have been able to do in the past. If they do, they will require more time, a different experience, and a greater security of tenure than is now customary. At present in Britain we tend toward the system of "rotating" deans, and continuity in office is not considered advantageous. One cannot help but feel that if we accept care of the individual student as the essence of university education, then we will need to appoint what you would presumably call "straight deans."

That is my picture of the ecology of the British medical student. Of course, like most pictures, it appears different from different viewpoints. This is best illustrated, I think, by the motto which is carved in stone over the entrance to my own school. This motto runs:

AMARA LENTO TEMPERA RISU

To the entering student that is too often translated as: "Grin and bear it." But the young doctor passing by on his important business usually translates it: "I laugh at you, Jack. I'm qualified."

I would like to think that the outline I have given you could come to resemble an à la carte menu for our undergraduate student who is learning to be a graduate student of medicine—a menu from which he can choose, with the help of a good white-coated waiter, an enjoyable, nourishing, well-balanced meal, which he eats slowly in pleasant company, digests, and after which he feels hungry. I am not, of course, suggesting that your medical education is based on the American Plan.

APPENDIX A

Supplementary Tables

This Appendix presents additional tables, classified by subject. Like the majority of tables reproduced in the preceding chapters, they are based on the pre-Institute survey which was designed to provide resource material for discussion of the Ecology of the Medical Student. As mentioned in the "Introduction to the 1957 Institute," there were five respondent groups involved in this survey—Participants, Department Heads, Regular Students, Special Faculty, and Special Students (Table A.1).

TABLE A.1

REPORT OF RETURNS ON THE FIVE PRE-INSTITUTE QUESTIONNAIRES

Respondent group	Questionnaires returned	
	Number	Per cent
Participants	92	94.8
Department Heads	1234	76.3*
Regular Students	2785	81.2
Special Faculty	1904	69.6
Special Students	4673	90.3

* Estimated from returns of major departments.

The three different questionnaires distributed to Participants, Department Heads, and Medical Students were designed by the Planning Committee and the AAMC staff and were sent to 97 medical schools in the United States, Canada, and Puerto Rico. Each Institute participant was asked to answer his questionnaire and also to distribute the appropriate questionnaires to each Department Head and to a random sample of 10 per cent of the students from each class at his school.

The other two questionnaires (Special Faculty and Special Student) were distributed to 15 special medical schools; these were excerpted in part from questionnaires used in Dr. Robert K. Merton's sociological studies of medical education. The sample of schools was designed as follows: four from each of four geographical regions in the United States, two tax-supported schools and two private; it was further planned that each tax-supported and each privately supported pair would represent one school with average Medical College Admission Test (MCAT) scores higher than the national average and one with average MCAT scores lower than national average. There is no high-MCAT, tax-supported school in one region; hence there are 15 schools instead of 16 in the total sample of special schools. A description of the special schools and the faculty respondents is given in Table A.2.

The special questionnaires were also distributed through the cooperation of Institute participants. At each special school the sample design for Faculty respondents was as follows: (1) Basic Science—all full-time faculty with the rank of instructor or above and five teaching or research associates, assistants, or fellows, randomly selected from each department; (2) Clinical—all full-time faculty with

TABLE A.2

DESCRIPTION OF THE SPECIAL SCHOOLS AND THE FACULTY RESPONDENTS

Medical school	Region	Type of support	Total faculty N	Clinical staff	
				N	Per cent of total faculty
I	South	Private	116	91	78
II	North East	Private	86	54	63
III	West	Tax	173	117	68
IV	North Central	Private	178	119	67
V	West	Tax	126	80	63
VI	South	Private	175	134	77
VII	North East	Private	152	102	67
VIII	North Central	Private	111	87	78
IX	West	Private	115	68	59
X	North Central	Tax	204	124	61
XI	West	Private	96	65	68
XII	North East	Tax	115	74	64
XIII	North East	Tax	98	58	59
XIV	South	Tax	100	71	71
XV	North Central	Tax	44	18	41
Total N			(1889)	(1262)	

the rank of instructor or above, 25 full-time teachers with a rank below instructor, and 25 part-time teachers at all levels (these two last-named groups to be selected randomly, five individuals in each from each of the following departments: Medicine, Surgery, Pediatrics, Obstetrics and Gynecology, and Psychiatry). It will be noted from the N's reported in the tables that this "ideal" sample was not completely realized, due no doubt to special situations in some schools and possibly to ambiguities in designations of faculty levels and of full-time or part-time status.

In addition to this stratified sample of the faculty at the special schools, it was desired to have 100 per cent of their students respond to the Special Student questionnaire. Since 10 per cent were already being asked to answer the Regular Student questionnaire, and since the two questionnaires had sections in common, 10 per cent of the students were given a combined form of the two questionnaires.

The return of all questionnaires was quite high considering that their distribution coincided with the end of the school year. A few questionnaires were returned too late to be included in this study. The two Student questionnaires were found to be statistically unwieldy, and therefore 50 per cent random samples were drawn for analysis. Table A.1 gives the total number of each type of questionnaire returned and the per cent of return based on the total sample requested.

The tables are designed to be self-explanatory, with headnotes and footnotes alerting the reader to the respondent group involved, multiple-response tables, and other special circumstances. A few tables report frequencies, but most figures are percentages; Ns are shown in parentheses. The majority of tables are based on large enough samples so that all but very small differences may be interpreted as suggestive of trends. However, where the number of respondents in a sub-group becomes less than 50, caution should be used in the interpretation of differences. It should be noted that the responses of the Participants group are to be interpreted as school responses, because each Institute participant filled out the questionnaire as his medical school's representative.

TABLE A.3

AGE OF MEDICAL STUDENTS BY SEX

(Regular student group)

Sex*	Age		Total N	
	Range	Average	Responding	No response
Male	19 to 44	25 0	1294	21
Female	20 to 45	25 5	73	2

* One student unclassified.

TABLE A.4

EDUCATION AND EMPLOYMENT STATUS OF MEDICAL STUDENTS' PARENTS

(Regular student group)

Item on parents	% of students describing	
	Father	Mother
Education		
Professional degree	26	4
4-year college graduate	10	15
1–3 years of college	14	22
High school graduate	18	30
10–11 years of school	10	11
7–9 years of school	14	11
Under 7 years of school	8	5
No response	*	1
Employment status		
Employed	78	32
Unemployed	1	53
Retired	8	5
Deceased	13	5
No response	1	5
Total N	(1391)	

* Less than .5 per cent.

TABLE A.5

MEDICAL STUDENTS CLASSIFIED BY AVERAGE MCAT SCORE OF SCHOOL AND BY FATHERS' OCCUPATIONS

(Regular student group)

Father's occupation	% of students in schools at 3 MCAT levels*		
	Upper 25%	Middle 50%	Lower 25%
Professional, semiprofessional, managerial (except M.D.)	38	34	30
M.D.	12	12	11
Other medically related fields	5	5	5
Proprietor	19	18	18
Clerical and sales	12	9	9
Service occupation	1	3	3
Agriculture, fishing, forestry	1	5	8
Skilled occupation	5	7	8
Semiskilled	4	5	5
Unskilled	1	2	3
Total N†	(308)	(751)	(319)

* Schools ranked according to the average Medical College Admission Test scores of their entering first-year students.

† There were 8 students unclassified by father's occupation, and 5 did not respond.

TABLE A.6

OCCUPATIONS OF MEDICAL STUDENTS' FATHERS CLASSIFIED BY REGION

(Regular student group)

Father's occupation	% of students in tax-supported schools in each region					% of students in privately supported schools in each region					% of students in all schools
	North East	South	North Central	West	Canada	North East	South	North Central	West	Canada	
Professional, semiprofessional, managerial (except M.D.)	26	32	38	36	27	36	30	33	41	39	34
M.D.	9	12	8	7	9	14	14	16	16	14	12
Other medically related fields	4	4	3	5	0	5	8	4	7	6	5
Proprietor	26	19	14	19	32	22	20	15	7	12	18
Clerical and sales	11	12	8	10	9	11	8	10	7	2	10
Service occupation	2	3	4	1	5	2	3	0	2	4	3
Agriculture, fishing, forestry	0	7	9	5	9	1	1	5	7	6	5
Skilled occupation	9	5	6	11	0	5	7	9	9	8	7
Semiskilled	13	5	7	1	9	2	5	6	2	8	5
Unskilled	0	1	3	4	0	2	3	2	2	0	2
Total N	(46)	(242)	(237)	(73)	(22)	(324)	(173)	(159)	(44)	(49)	(1376)*

*There were 9 students unclassified by region, 8 unclassified by father's occupation, and 5 not responding.

TABLE A.7

INCOME OF MEDICAL STUDENTS' PARENTS

(Regular student group)

Annual income of parents	% of students				
	1st year	2nd year	3rd year	4th year	Total
Under $5,000	22	23	24	30	25
$ 5,000–$10,000	35	38	40	31	36
$10,000–$15,000	25	18	15	17	19
Above $15,000	17	20	19	21	19
No response	2	2	1	1	1
Total N	(394)	(354)	(324)	(316)	(1388)*
Median income	*$8,885*	*$8,420*	*$8,185*	*$8,090*	*$8,420*

* Three students not classified.

TABLE A.8

TYPE OF COMMUNITY IN WHICH STUDENTS LIVED LONGEST BEFORE ATTENDING MEDICAL SCHOOL

(Regular student group)

Home community*	% of students in tax-supported schools in each region					% of students in privately supported schools in each region					% of students in all schools
	North East	South	North Central	West	Canada	North East	South	North Central	West	Canada	
Large city	59	27	35	45	43	42	40	51	32	36	39
Suburbs of large city	11	4	10	7	13	19	13	14	9	8	12
Small city	17	28	24	23	9	23	26	18	27	30	24
Town	7	24	18	16	9	13	17	13	18	14	16
Small town	2	5	4	1	4	2	2	1	2	4	3
The country	4	11	9	7	22	2	2	4	11	6	6
No response	0	0	0	0	0	0	0	0	0	2	0
Total N	(46)	(245)	(239)	(73)	(23)	(328)	(174)	(160)	(44)	(50)	(1382)†

* Large city = (over 100,000)
Small city = (10,000 to 100,000)
Town = (1,000 to 10,000)
Small town = (under 1,000)

† Nine students not classified by region.

TABLE A.9

UNDERGRADUATE MAJOR FIELDS CLASSIFIED BY AVERAGE MCAT SCORE OF SCHOOL

	% of students in schools at 3 MCAT levels*			% of students in all schools
	Upper 25%	Middle 50%	Lower 25%	
Biological sciences (except biology and zoology)	5	5	2	4
Biology	18	15	17	16
Chemistry	13	13	20	15
Humanities	7	2	3	3
Mathematics	2	1	1	1
Physical science (except chemistry)	1	1	1	1
Premedical	19	25	27	24
Psychology	5	4	3	4
Social science	2	1	2	1
Zoology	8	10	10	9
Other	21	24	14	21
Total N	(312)	(758)	(321)	(1391)

* Schools ranked according to the average Medical College Admission Test scores of their entering first-year students.

TABLE A.10

STUDENT REPORTS OF REQUESTS FROM SCHOOL LOAN SERVICE

(Regular student group)

Comment on loan request	% of students
Request was granted	12
Request was not granted	2
Have not attempted to borrow from it	76
Have no student loan service	8
No response	3
Total N	(1391)

TABLE A.11

STUDENT OPINION OF SCHOOL LOAN PROGRAM

(Regular student group; multiple response)

Opinion on loan program	% of students
Satisfactory	24
Interest too high	1
Term too short	2
Available loans too small	8
Procedure for getting loans too complex	3
Other	2
No opinion	47
No response	16
Total N	(1391)

TABLE A.12

STUDENT REPORTS OF PROBABLE SOURCE OF EMERGENCY FUNDS OVER $100

(Regular student group)

Probable source of emergency funds	% of students
Parents	35
Other relatives	6
Own savings	27
Medical school loan	4
Bank	5
Loan company	*
Other	2
No response	*
Total N	(1391)

* Less than .5 per cent.

TABLE A.13

STUDENT OPINION OF EFFECT OF FINANCIAL PROBLEMS ON ACADEMIC PERFORMANCE

(Regular student group)

Financial problems:	% of students
Seriously affect work and jeopardize standing in school	3
Affect work but do not jeopardize standing in school	31
Do not affect work	66
Total N	(1391)

TABLE A.14

SCHOOL OPINION ON COST OF MEDICAL EDUCATION AS A PROBLEM AS COMPARED WITH FIVE YEARS AGO

(Participants group)

Region	Total N in each region	Number of schools commenting on today's students vs. those 5 years ago: Many find it more difficult to meet costs	Some find it more difficult to meet costs	Few find it more difficult to meet costs	Situation is about the same as 5 years ago
Tax-supported schools					
North East	5	3	1	0	1
South	15	8	2	0	5
North Central	15	5	7	2	1
West	4	1	2	1	0
Canada	4	1	3	0	0
Privately supported schools					
North East	19*	10	4	2	2
South	13	7	6	0	0
North Central	9	4	3	2	0
West	3	3	0	0	0
Canada	4	0	1	1	1

* One school did not respond.

TABLE A.15

EXISTING INTEREST RATES OF VARIOUS SCHOOL LOANS

(Participants group; multiple response)

Region	Total N in each region	Number of schools citing loans at various interest rates						
		6% or more	5%	4%	3%	2%	1%	No interest
Tax-supported schools								
North East	5	0	1	2	2	3	1	4
South	15	1	2	1	6	5	1	4
North Central	15	2	2	4	3	9	1	4
West	4	0	0	2	0	1	1	1
Canada	4	0	2	1	0	0	1	1
Privately supported schools								
North East	19*	3	0	2	1	3	2	13
South	13	2	1	2	5	7	2	2
North Central	9	0	0	0	3	5	1	3
West	3	1	0	1	1	0	0	1
Canada	4*	0	0	1	1	1	1	1

*One school not responding.

TABLE A.16

PRACTICE FOLLOWED IN GRANTING LOANS WHEN INSUFFICIENT LOAN FUNDS ARE AVAILABLE

(Participants group)

Region	Total N in each region	Number of schools citing practice when loan funds insufficient		
		Some students must be refused loans	All requests granted but amount reduced	No response
Tax-supported schools				
North East	5	0	1	4
South	15	5	1	9
North Central	15	4	4	7
West	4	0	1	3
Canada	4	1	1	2
Privately supported schools				
North East	19	3	3	13
South	13	3	6	4
North Central	9	3	1	5
West	3	2	0	1
Canada	4	0	2	2

3. Student-Faculty Relations

TABLE A.17

SCHOOL REPORTS OF FACULTY PARTICIPATION WITH STUDENTS IN RECREATIONAL ACTIVITIES

(Participants group)

Faculty participation with students in recreation	% of schools
Frequently	11
Occasionally	38
Rarely	45
Never	5
No response	1
Total N	(92)

TABLE A.18

SCHOOL AND STUDENT OPINION ON HOW EASY OR DIFFICULT IT IS TO GET ACQUAINTED WITH FACULTY MEMBERS IN NONACADEMIC SITUATIONS

(Participants and regular student groups)

Opinion on getting acquainted in in nonacademic situations	% of each group	
	Schools	Students
Easy; faculty members typically take initiative	14	11
Usually not difficult; faculty members receptive to social contacts with students	67	62
Usually difficult; faculty members seldom receptive to social contacts with students	19	16
Almost impossible; faculty members are reserved	0	3
Almost impossible; faculty members are usually unavailable	3	7
No response	2	1
Total N	(92)	(1391)

TABLE A.19

SCHOOL AND STUDENT OPINION ON ADEQUACY OF PRESENT OPPORTUNITIES TO GET ACQUAINTED WITH FACULTY MEMBERS IN NONACADEMIC SITUATIONS

(Participants and regular student groups)

Adequacy of faculty-student nonacademic relations	% of each group	
	Schools	Students
There is too much contact of this nature	0	1
Present opportunities are satisfactory	39	43
More such opportunity might be desirable	49	41
More such opportunity is strongly desirable	12	14
No response	0	1
Total N	(92)	(1391)

TABLE A.20

SCHOOL AND STUDENT OPINION ON HOW EASY OR DIFFICULT IT IS TO GET ACQUAINTED WITH FACULTY MEMBERS IN ACADEMIC SITUATIONS

(Participants and regular student groups)

Opinion on getting acquainted in academic situations	% of each group	
	Schools	Students
Fairly easy; faculty members often discuss professional problems informally and exchange views with students	65	40
Not difficult; faculty members occasionally discuss professional problems informally and exchange views with students	32	48
Difficult; faculty members rarely or never discuss professional problems informally and exchange views with students	3	10
Impossible; faculty members interact professionally only through lectures and other formal contacts	0	2
Total N	(92)	(1391)

TABLE A.21

TYPES OF FACULTY ADVISORY SYSTEMS

(Participants group)

Comment on advisory system	% of schools
Students assigned adviser	26
Students choose adviser	9
No faculty advisory system	64
No response	1
Total N	(92)

TABLE A.22

SCHOOL OPINION ON DESIRABILITY OF A FACULTY ADVISORY SYSTEM

(Participants group)

Opinion on faculty advisory system	% of schools
Would be valuable	51
Would not be valuable	32
No opinion on value	15
No response	3
Total N	(59)*

* Schools without faculty advisory systems.

TABLE A.23

SOURCES OF STUDENT COUNSELING ON INTERNSHIP

(Participants groups; multiple response)

Source of internship counseling	% of schools
Dean	83
Clinical members of staff	87
Internship committee members	61
Other	20
No such counseling available	0
Do not know	1
No response	2
Total N	(92)

TABLE A.24

STUDENT ACCESS TO A NONMEDICAL LIBRARY

(Participants group; multiple response)

Comment on library facilities	% of schools
There is a nonmedical library as a facility of the medical school	9
There is a nonmedical library as a facility of the university	52
Students have convenient access to a public library	45
No nonmedical library is convenient	5
Total N	(92)

TABLE A.25

DEPARTMENT HEAD REPORTS ON INDIVIDUALS RESPONSIBLE FOR GRADING

(Department head group)

Individuals responsible for grading students	% of department heads describing student grading in: First 2 years	Last 2 years
Basic Science Departments (N = 409)		
Department head	14	2
Individual instructors, independently	23	2
Groups of instructors, jointly within department	76	6
Interdepartmental committees	8	1
No response	3	90
Clinical Departments (N = 813)		
Department head	14	31
Individual instructors, independently	19	26
Groups of instructors, jointly within department	23	47
Interdepartmental committees	3	5
No response	52	21

TABLE A.26

STUDENT OPINION ON GRADING SYSTEMS

(Regular student group)

Best single indication of performance	% of 3rd and 4th year students citing opinion: During first 2 years	During last 2 years
A letter or numerical grade average	22	8
National Board Examination score average	6	6
Rank in class based on a weighted average of course grades	26	19
Rank in class based on National Board Examination scores	3	4
A rating of superior, pass, or fail	24	38
A rating of pass or fail only	14	21
Other	1	2
No response	3	3
Total N	(640)	

TABLE A.27

STUDENT DEPENDENCE ON VARIOUS EVALUATIONS

(Special student group)

Most important factor in determining how well one is doing	% of students
Comments of fellow students	5
Information given by faculty	33
Personal self-evaluation	55
No response	7
Total N	(1322)

TABLE A.28

STUDENT REPORTS OF ALLOCATION OF STUDY TIME

(Special student group)

Study time	% of students
Per week (including week ends)	
10 hours or less	16
11–15 hours	24
16–20 hours	24
21–25 hours	19
26 hours or more	16
No response	1
During week ends only	
None	5
1–3 hours	28
4–6 hours	39
7 hours or more	26
No response	1
Total N	(1322)

TABLE A.29

SCHOOL REPORTS OF TEMPORARY STUDENT DROPOUTS TO PURSUE RESEARCH PROJECTS

(Participants group)

Region	1-year research dropouts during past 5 years: Average number of students per school	Number of schools
Tax-supported schools		
North East	6	(5)
South	2	(15)
North Central	14	(15)
West	33	(4)
Canada	1	(4)
Privately supported schools		
North East	19	(19)
South	18	(13)
North Central	12	(9)
West	5	(8)
Canada	0	(4)
All schools		
United States and Canada	13	(91)

TABLE A.30

AGE AT WHICH MEDICAL STUDENTS THOUGHT OF BECOMING DOCTORS

(Special student group)

Age first thought of medicine	% of students	Age finally decided on medicine	% of students
7 years or earlier	19	12 years or earlier	9
8 years	3	13 years	1
9 years	3	14 years	3
10 years	8	15 years	3
11 years	2	16 years	10
12 years	10	17 years	14
13 years	6	18 years	16
14 years	8	19 years	10
15 years	8	20 years	10
16 years	8	21 years	8
17 years or later	24	22 years or later	11
	(Total N = 1322)		

TABLE A.31

MEDICAL STUDENTS WITH RELATIVES IN THE PROFESSIONS

(Special student group; multiple response)

	% of the total group (N = 1322) citing relatives in the professions*		
Professional group	Parent	Brother, sister, or spouse	Other relative
Medical doctors	14	6	32
Lawyers	3	2	22
Dentists	2	1	14
Clergymen	2	2	18
Teachers	12	15	33
Nurses	6	10	20
Engineers	3	6	18
Business executives; other professionals	5	7	8

* There were 1,111 students indicating at least one relative in the professions.

TABLE A.32

MAJOR PROFESSIONAL ACTIVITY OF PHYSICIAN FATHERS

(Special student group)

Major professional activity	% of students with physician fathers
General practice	44
Specialty practice	49
Teaching	1
Research	2
Other	4
Total N	(187)

TABLE A.33

PHYSICIAN FATHERS' PRACTICE OF SPECIALTY FIELD

(Special student group)

Comment on father's practice	% of students with physician fathers
Limits his practice to specialty	40
Does not limit his practice to specialty	26
Is in research or teaching	3
Do not know	1
No response	29
Total N	(187)

TABLE A.34

EXPOSURE OF STUDENTS TO PHYSICIAN FATHERS' METHODS OF DEALING WITH PATIENTS AND DISCUSSION OF PROBLEMS

(Special student group)

	% of students with physician fathers citing	
Frequency	Observation of methods with patients	Exposure to discussion of problems
Every 3 or 4 days	18	36
Several times a month	20	19
Now and then during a year's time	34	22
Rarely	20	16
Never	6	4
No response	3	22
Total N	(187)	

TABLE A.35

PROBABILITY OF STUDENTS' JOINING FATHERS' MEDICAL PRACTICE

(Special student group)

Comment on joining father's practice	% of students with physician fathers
Will probably join his practice	17
Probably will not join, but will practice in same or nearby community	16
Will probably practice in different community	33
Have not thought about it at all	3
Does not apply (father not in practice)	13
Not decided	17
No response	1
Total N	(187)

TABLE A.36

STUDENT REPORTS OF PHYSICIAN FATHERS' ATTITUDES TOWARD THE CHOICE OF A MEDICAL CAREER

(Special student group)

Attitude of father	% of students with physician fathers
Preferred that I enter some career other than medicine	3
Equally happy if I had chosen some career other than medicine	47
Mildly disappointed if I had chosen some career other than medicine	30
Quite disappointed if I had chosen some other career	14
Do not know	5
Total N	(187)

TABLE A.37

EXPECTED INCOME OF MEDICAL STUDENTS

(Special student group)

Expected income	% of students citing expectation	
	10 years after getting M.D.	At peak of career
Under $5,000	2%	1
$ 5,000–$10,000	14	2
$10,000–$15,000	41	13
$15,000–$20,000	27	30
$20,000–$25,000	11	31
Over $25,000	5	22
Median expected income	*$14,185*	*$20,595*
Responding N*	(1309)	(1306)

* Of the total N of 1322 students, 13 did not respond to the first part and 16 did not respond to the second.

TABLE A.38

AVERAGE NUMBER OF GRADUATES PER SCHOOL APPOINTED TO VARIOUS TYPES OF INTERNSHIPS

(Participants group)

Type of internship	Average number of graduates per school									
	North East		South		North Central		West		Canada	
	1950	1956	1950	1956	1950	1956	1950	1956	1950	1956
Tax-supported schools										
Major* teaching hospital	15	47	24	36	27	76	12	27	28	24
Minor* teaching hospital	3	6	4	5	26	19	6	6	8	9
Nonteaching										
Municipal hospital	2	6	9	14	74	66	7	7	11	11
Private hospital	13	9	16	18	21	37	21	17	28	10
Government hospital	2	6	87	55	36	23	11	9	0	0
No response	1	0	5	4	4	2	0	0	2	1
Total N	(5)	(5)	(15)	(15)	(15)	(15)	(4)	(4)	(4)	(4)
Privately supported schools										
Major* teaching hospital	60	99	59	130	39	50	31	32	114	213
Minor* teaching hospital	17	15	124	35	5	7	6	5	113	7
Nonteaching										
Municipal hospital	4	7	50	79	8	5	6	14	100	0
Private hospital	29	22	127	74	19	21	17	17	67	1
Government hospital	14	12	104	159	6	4	8	3	306	3
No response	9	5	0	0	1	1	0	0	1	1
Total N	(19)	(19)	(13)	(13)	(9)	(9)	(3)	(3)	(4)	(4)

* Major and minor refer to number of students.

TABLE A.39

SPECIALTY CHOICE OF THOSE STUDENTS PLANNING TO SPECIALIZE

(Regular student group)

Specialty choice	% of students in each class			
	1st year	2nd year	3rd year	4th year
Basic Medical Science	2	2	*	*
Anesthesiology	1	1	*	2
Dermatology	2	*	0	1
Internal Medicine	16	25	28	24
Neurology	1	1	*	*
Obstetrics and Gynecology	7	9	11	10
Ophthalmology	2	2	3	3
Pathology	3	1	3	3
Pediatrics	10	5	5	11
Physical Med. and Rehab.	1	*	0	0
Prev. Med. and Pub. Health	1	*	*	0
Psychiatry	5	8	8	8
Neuropsychiatry	1	1	3	2
Radiology	*	0	2	4
Surgery	17	19	19	20
Urology	*	1	1	*
Undecided	26	22	14	13
Other	4	1	1	1
Two or more of above	1	1	1	2
Responding N†	(251)	(287)	(240)	(262)

* Less than .5 per cent response.

† Of the total N of 1391 regular students.

TABLE A.40

STUDENT CERTAINTY WITH REGARD TO SPECIALTY CHOICE

(Regular student group)

Certainty of specialty choice	% of students in each class				
	1st year	2nd year	3rd year	4th year	Total
Almost certain	15	7	21	37	20
Choice tentative, but change unlikely	13	21	22	24	20
Choice reflects present feeling	46	45	44	26	40
Little confidence in permanence of choice	18	18	9	9	13
No response	8	9	4	3	6
Total N*	(251)	(287)	(240)	(262)	(1040)

* Out of 1391 students in the regular student respondent group, these indicated a specialty choice.

TABLE A.41

STUDENT REPORTS OF THE IMPORTANCE OF VARIOUS CONSIDERATIONS ENTERING INTO THEIR SELECTION OF A FUTURE CAREER WITHIN MEDICINE

(Special student group)

Factor in career selection	Average rating* by those who plan careers in:					Total group	
	General practice	Specialty practice	Research and/or teaching	Other	Two or more of foregoing	Average rating*	Responding N†
Having the opportunity to know your patients very well	1.3	1.5	2.0	1.6	1.5	1.5	(1318)
Being able to establish your own hours of work	2.2	2.0	2.0	2.1	2.1	2.1	(1316)
Meeting diagnostic problems that are particularly challenging	1.6	1.5	1.6	1.5	1.5	1.5	(1317)
Making a good income	2.1	1.9	2.3	2.2	2.1	2.0	(1312)
Having patients who will appreciate your efforts	1.7	1.8	2.3	1.8	1.9	1.8	(1318)
Having prestige within the medical profession	2.1	1.9	2.0	1.9	1.9	2.0	(1316)
Having to meet few emergency situations	2.8	2.9	3.0	2.8	3.0	2.9	(1305)
Having to perform technical procedures that require manual skills	2.3	2.3	2.4	2.2	2.5	2.3	(1309)
Having to deal with a minimum of uncertainties in diagnosis and therapy	2.8	2.9	3.0	2.9	3.2	2.9	(1316)
Rarely having the life of the patient in your hands	2.9	3.1	3.2	3.1	3.2	3.0	(1315)
Responding N†	(495)	(709)	(61)	(16)	(34)	...	...

* Mean of ratings assigned by students: 1 = major importance; 4 = no importance.

† Total N of the special student group = 1322.

TABLE A.42

STUDENTS WHO PLAN TO SPECIALIZE: REPORTS OF THE IMPORTANCE OF VARIOUS CONSIDERATIONS ENTERING INTO THEIR SPECIALTY CHOICE

(Special student group)

Factor in specialty choice	Average rating* by specialty choice of students									
	Internal med.	Psychiatry & neurology	Obstetrics & gynecology	Ophthalmology & otolaryn.	Pathology	Pediatrics	General surgery	Special surgery	Undecided	Other
Having the opportunity to know your patients very well	1.5	1.3	1.2	1.9	2.1	1.5	1.5	1.6	1.6	2.0
Being able to establish your own hours of work	2.0	1.8	2.3	1.8	1.9	2.0	2.2	2.1	1.9	1.7
Meeting diagnostic problems that are particularly challenging	1.3	1.4	1.7	1.7	1.5	1.6	1.4	1.5	1.5	1.4
Making a good income	1.9	2.0	1.8	1.8	2.0	2.2	2.0	2.0	1.9	1.8
Having patients who will appreciate your efforts	1.9	2.0	1.6	1.7	2.2	1.9	1.8	1.7	1.8	1.9
Having prestige within the medical profession	1.9	2.2	1.9	1.9	1.9	2.1	1.9	1.9	1.9	1.8
Having to meet few emergency situations	2.9	2.8	2.8	2.6	2.4	2.9	3.0	3.0	3.0	2.8
Having to perform technical procedures that require manual skills	2.7	2.9	2.0	1.7	2.6	2.6	1.7	1.6	2.5	2.4
Having to deal with a minimum of uncertainties in diagnosis and therapy	3.0	3.2	2.7	2.3	2.5	2.9	2.8	3.1	2.8	2.9
Rarely having the life of the patient in your hands	3.2	3.0	3.0	2.8	3.0	3.1	3.2	3.3	2.9	3.3
Responding N	(158)	(67)	(74)	(29)	(17)	(62)	(98)	(71)	(117)	(36)

* Mean of ratings assigned by students: 1 = major importance; 4 = no importance. See Table A.41.

APPENDIX B

Roster of Participants–1957 Teaching Institute

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BERRY, GEORGE PACKER, M.D., *Dean*, Harvard Medical School

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